1999

College Choice: Psychological Factors Influencing *Postsecondary Aspirations and Expectations of Ninth-Grade Students.

Stuart Earle Johnson
Louisiana State University and Agricultural & Mechanical College

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI®

COLLEGE CHOICE: PSYCHOLOGICAL FACTORS INFLUENCING POSTSECONDARY ASPIRATIONS AND EXPECTATIONS OF NINTH-GRADE STUDENTS

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Educational Leadership, Research and Counseling

by
Stuart Earle Johnson
B.A., University of California at Santa Barbara, 1975
M.B.A., Loyola University, New Orleans, 1978
December, 1999

ACKNOWLEDGMENTS

When I began working on this dissertation many veterans of the process warned that I would experience many emotional peaks and valleys. They did not exaggerate. As new avenues of inquiry opened and inspirations of thought dawned, I felt motivated and excited. More often, as writing bogged down, analyses failed to support original hypotheses or the drudgery of endless trips to the library set in, the completion of this document seemed to only be a distant dream. I often wondered if the end result was really worth all the work or whether I was toiling in vain. Fortunately, whenever I hit low points a supportive network of teachers, family, friends and co-workers seemed to take hold and give me the encouragement necessary to continue. Although it is impossible for me to acknowledge all who have shown me support, there are a special few I wish to mention here.

First and foremost I thank my wife Sharon and my daughter Lauren. They encouraged me with their love and support, and, in many ways, sacrificed more than I did to see this dissertation completed. Without them, I would not have been successful in achieving this dream.

My parents, Oliver and Carol Johnson, raised me in a household where education was revered and gave me, along with my sisters, Julie, Elizabeth and Melinda, the understanding that becoming an educated person is a distinction of unequaled importance. Their modeling and encouragement helped me develop strong personal beliefs of academic self-efficacy which, if my research is accurate, helped carry me through the dissertaion process. My love for them is not spoken often, but always deeply felt.

Dr. Chad Ellett, chairman of my doctoral committee, has been not only a mentor but also a friend. He inspires me with his intellect and astounds me with his generosity and patience. When the completion of this document was in doubt, Dr. Ellett and his wife Bert took me into their home and provided me the support and environment needed to finish.

I am also grateful to the other members of my committee, Professors Brian Bornstein, William Davis, Richard Fossey and Terry Geske. Their scrutiny and scholarly contributions added a great deal to the quality of this document. Also, my fellow doctoral student John Rugutt provided invaluable assistance in the analysis of the data collected for this study.

The host of friends and relatives who supported my efforts cannot all be mentioned, but have been "families" to me. Sharon's parents, sisters, brother's-in-law, nieces and nephews have been my immediate family in Louisiana, as my own parents live in California and the rest of my family is dispersed throughout the country. For nineteen years I worked at the University of Southwestern Louisiana (now the University of Louisiana at Lafayette). My colleagues in the Student Affairs area of the university were more than co-workers and friends, but also a family. Now I am part of the State Park's family. While it may seem trite to refer to colleagues as family, those who know the two individuals who head these entities, Raymond Blanco at U.L. and Lieutenant Governor Kathleen Blanco at State Parks, know this not to be the case. Their genuine care and support for those with whom they work, myself included, transcends professional relationships to a unified feeling of family.

TABLE OF CONTENTS

ACKNOWLEDGMENTS ii

LIST OF TABLES vii

LIST OF FIGURES xii

ABSTRACT xiii

CHAPTER 1: INTRODUCTION 1
- Overview 1
- Study Context 1
  - Participation of Minority Groups in Higher Education 3
- Statement of the Problem 6
- Theoretical Construct 8
  - Self-Efficacy 8
  - Locus of Control 12
  - Distinction Between Constructs 15
  - An Expanded College Choice Model 16
- Purpose 22
- Significance of the Study 23
- Research Hypotheses and Questions 24
  - Research Hypotheses 24
  - Research Questions 25
- Definition of Terms 30
  - Self-Efficacy 30
  - Locus of Control 31
  - College Aspirations 31
  - College Expectations 32
  - Parental Encouragement 32
  - Parental Education Level 33
  - Academic Achievement 33
  - Academic Track 33
  - Participation in Extracurricular Activities 33
- Limitations 34
- Chapter Summary 34

CHAPTER 2: REVIEW OF RELATED LITERATURE AND RESEARCH 35
- Introduction 35
- Overview of the College Choice Process 35
  - College Choice Models 36
  - Phases of the College Choice Process 38

Predictive Variables 40
College Choice Process for Minority Groups 59
Psychological Factors 61
Self-Efficacy 61
Locus of Control 69
Chapter Summary 75

CHAPTER 3: METHODOLOGY AND PROCEDURES 76
Research Design 76
Target Population for the Study 76
Instrumentation and Measures 79
Pilot Testing 79
Internal-External Locus of Control Scale 81
Children's Self-Efficacy Scale 84
National Education Longitudinal Study of 1988 86
Data Collection Procedures 87
Packaging and Distribution Procedures 87
Data Collection Time Lines 88
Data Analyses 89
Descriptive Statistics 89
Factor Analyses 90
Reliability Analyses 90
Correlation Analyses 91
Regression Analyses 91
Partial Correlation Analyses 91
Supplemental Data Set 92

CHAPTER 4: SUMMARY OF RESULTS 94
Summary of Descriptive Statistics for Survey Sample 94
Summary of Descriptive Statistics for Measurement Instrument Items 102
Summary of Results of Factor Analyses 106
Locus of Control Factor Analyses 106
Self-Efficacy Factor Analyses 113
Summary of Factor Analyses 118
Summary of Results of Reliability Analyses 118
Locus of Control Reliability Analyses 120
Academic Self-Efficacy Reliability Analyses 120
Reliability Analyses by Racial Subgroups 120
Reliability Analyses by School 121
Rationale for Final Structure of Measures 121
Summary of Analyses for Primary Research Hypotheses 122
Bivariate Correlation Analyses 122
Regression Analyses 128

Summary of Analyses for Supplemental Research Questions 131
Summary of Analyses of Supplemental Data Set 147
Factor Analyses 148
Reliability Analyses 149
Correlation Analyses 149
Partial Correlation Analyses 150
Student Interviews 151
Structural Equation Model Analyses 151

CHAPTER 5: CONCLUSIONS, DISCUSSION, IMPLICATIONS 153
Overview of the Study 153
Major Findings and Conclusions 159
Major Finding Number One 160
Major Finding Number Two 160
Major Finding Number Three 161
Major Finding Number Four 161
Major Finding Number Five 161
Major Finding Number Six 162
Major Finding Number Seven 162
Discussion and Implications of Major Findings 162
Theoretical Implications 163
Implications for Future Research 171
Practical Implications 179
Chapter Summary 184
Dissertation Summary 184

REFERENCES 186

APPENDIX A: INSTRUMENT SET AND COVER LETTERS 201

APPENDIX B: SUMMARY OF DESCRIPTIVE STATISTICS 211

APPENDIX C: SUPPLEMENTAL FACTOR STRUCTURES FOR LOCUS OF CONTROL AND ACADEMIC SELF-EFFICACY MEASURES 222

APPENDIX D: ITEM LOCATION INDEX FOR FACTORED SUBSCALES FOR LOCUS OF CONTROL AND ACADEMIC SELF-EFFICACY MEASURES 242

APPENDIX E: RELIABILITY ANALYSES BY RACIAL SUBGROUPS 245

APPENDIX F: SUMMARY OF DATA ANALYSES PERFORMED USING LOUISIANA DATA SET 249

VITA 254

LIST OF TABLES

3.1 Profile of Population by School and Race 78

4.1 Profile of Sample by Personal Characteristics of Respondents 96

4.2 Profile of Sample by Race, Age, Gender and Socioeconomic Status 99

4.3 Summary of Item Means for All Continuous, Rank and Categorical Measures and Subscales by Race 104

4.4 Summary of Item Standard Deviations for All Continuous, Rank and Categorical Measures and Subscales by Race 105

4.5 Summary of the Factor Structure Coefficients for Items Retained for the One-Factor Solution for the Internal-External Locus of Control Scale 107

4.6 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale 109

4.7 Summary of the Factor Structure Coefficients for Items Retained for the One-Factor Solution for the Self-Efficacy Scale 114

4.8 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale 116

4.9 Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales 119

4.10 Summary of Intercorrelations of College Aspirations and College Expectations with Other Study Variables 123

4.11 Summary of Intercorrelations of Academic Self-Efficacy Subscales with Other Study Variables 124

4.12 Summary of Intercorrelations of Locus of Control Subscales with Other Study Variables 125

4.13 Summary of Intercorrelations of the Traditional Variables of College Choice 126

4.14 Stepwise Regression of College Aspirations Against the Traditional Variables of College Choice and Locus of Control and Academic Self-Efficacy Subscales 130

4.15 Stepwise Regression of College Expectations Against the Traditional Variables of College Choice and Locus of Control and Academic Self-Efficacy Subscales 132

4.16 Partial Correlations Between the Global Academic Achievement Index and College Aspirations, Controlling for the Effects of the Academic Self-Efficacy Measures 134

4.17 Partial Correlations Between the Global Academic Achievement Index and College Expectations, Controlling for the Effects of the Academic Self-Efficacy Measures 135

4.18 Partial Correlations Between the Global Academic Achievement Index and College Aspirations, Controlling for the Effects of the Locus of Control Measures 137

4.19 Partial Correlations Between the Global Academic Achievement Index and College Expectations, Controlling for the Effects of the Locus of Control Measures 139

4.20 Summary of Intercorrelations Among the Independent Variables and College Aspirations and College Expectations, African American Subsample 140

4.21 Summary of Intercorrelations Among the Independent Variables and College Aspirations and College Expectations, Hispanic Subsample 141

4.22 Summary of Intercorrelations Among the Independent Variables and College Aspirations and College Expectations, White Subsample 142

4.23 Summary of Intercorrelation Coefficients for Items on the Academic Self-Efficacy Scale 146

A.1 Instrument Set Administered to all Student Samples 202

A.2 Instruction Letter to Teachers 208

A.3 Parental Consent Form 209

B.1 Summary of Descriptive Statistics for Each Item for the Academic Self-Efficacy Scale 212

B.2 Summary of Frequency Distributions of Internal-External Locus of Control Scale 213

B.3 Summary of Descriptive Statistics for Academic Achievement 215

B.4 Summary of Descriptive Statistics for College Aspirations 216

B.5 Summary of Descriptive Statistics for College Expectations 217

B.6 Summary of Frequency Distributions for Parental Expectations 218

B.7 Summary of Frequency Distributions for Parents' Level of Education 219

B.8 Summary of Frequency Distributions for Participation in Extracurricular Activities 220

B.9 Summary of Frequency Distributions for High School Academic Track 221

C.1 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Three-Factor Orthogonal Solution for the Internal-External Locus of Control Scale 223

C.2 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Five-Factor Orthogonal Solution for the Internal-External Locus of Control Scale 225

C.3 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, African American Sub-Sample 227

C.4 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Hispanic Sub-Sample 229

C.5 Summary of the Rotated Factor Structure Coefficient for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, White Sub-Sample 231

C.6 Summary of the Rotated Factor Structure Coefficient for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Male Sub-Sample 233

C.7 Summary of the Rotated Factor Structure Coefficient for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Female Sub-Sample 235

C.8 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, African American Subsample 237

C.9 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, Hispanic Subsample 238

C.10 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, White Subsample 239

C.11 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, Male Subsample 240

C.12 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, Female Subsample 241

D.1 Item Location Index for Factor Subscales of the Internal-External Locus of Control Scale 243

D.2 Item Location Index for Factor Subscales of the Academic Self-Efficacy Scale 244

E.1 Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales, African American Subsample 246

E.2 Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales, Hispanic Subsample 247

E.3 Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales, White Subsample 248

F.1 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Five-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Louisiana Data Set 250

F.2 Summary of the Rotated Factor Structure Coefficients for Items Retained for the Two-Factor Orthogonal Solution for the Self-Efficacy Scale, Louisiana Data Set 252

F.3 Summary of Intercorrelations of College Aspirations and College Expectations with Other Study Variables, Louisiana Data Set 253

LIST OF FIGURES

1. Alwin and Otto's Sociological Model of College Choice 17

2. Hossler and Stage's Combined College Choice Model 18

3. Expanded College Choice Model with Psychological Factors 19

ABSTRACT

The purpose of this study was to explore relationships between several variables which help to explain the process by which adolescents decide to pursue a college education. Previous models were enhanced by including important theoretical constructs well documented in social cognitive and attributional theories as elements of human agency. The psychological constructs, self-efficacy and locus of control were the primary focus of attention as independent variables and for their significance as mediating variables affecting the relationship between previously identified factors attributed to students' postsecondary attendance decisions, and students' college aspirations and expectations. Particular attention was given to the college choice process for members of minority groups, as previous research has not adequately identified the variables which motivate these individuals to pursue a college education. The study also explored the conceptualization of self-efficacy to provide a better understanding of the construct's generalizing nature and to discern the relationship between the capabilities and the persistence notions of the construct.

The study sample consisted of 1076 ninth-grade students attending public high schools in the Miami-Dade County Public Schools. Parts of three measures were used for data collection: the Internal External Locus of Control Scale (Rotter, 1966), the academic sections of the Children's Self-Efficacy Scale, (Bandura, 1989), and the National Education Longitudinal Study of 1988 (U.S. Department of Education, 1992).

Major findings of the study showed that: a) locus of control is not a significant factor in the college choice process although low reliability in the data made this finding

inconclusive; b) there is evidence that academic self-efficacy is both directly related to college aspirations and expectations and mediates the linkages between academic achievement and aspirations and expectations; c) the models of college choice are different for members of minority groups than for White students; d) to some extent an individual's self-efficacy can be generalized both across academic domains and within academic domains; and e) self-efficacy beliefs about capabilities to execute academic behaviors and beliefs about academic task persistence can be independently measured and are moderately related within self-efficacy theory.

CHAPTER 1: INTRODUCTION

Overview

This study explores relationships between several variables which help to explain the process by which adolescents decide to pursue a college education. Specifically, psychological factors are examined for their significance in this aspect of the college choice process, adding to existing models which have typically focused only on sociological or economic variables. For this study, the constructs of self-efficacy and locus of control are the primary focus of attention as independent variables. These constructs also are examined for their significance as mediating variables associated with the relationship between previously identified factors attributed to students' postsecondary attendance decisions, and students' college aspirations and expectations. Particular attention is given to the college choice process for members of minority groups, as previous research has not adequately identified the variables which motivate these individuals to pursue a college education. Chapter 1 provides a discussion of the rationale and background for the study followed by the statement of the problem, an examination of the conceptual framework guiding the inquiry and a delineation of study variables. Primary research hypotheses, as well as supplemental research questions, are also included.

Study Context

Previous research on the college choice process is generally categorized into one of three approaches: the econometrics approach, the sociological approach or the combined approach (Hossler et al., 1989). Researchers using the econometrics

approach typically endeavor to explain the decision process in terms of personal economic advantages which accrue to the student through college attendance. The student, it is argued, attends based on the best return on their investment relative to the best non-college alternatives (Bishop, 1977; Fuller et al., 1982; Kohn et al., 1976; Nolfi, 1978; Manski and Wise, 1983; Geske, 1990). Proponents of the sociological approach typically examine college attendance as part of a status attainment process for the individual. The prestige which a student expects from postsecondary attendance and how prestige translates into employment upon graduation are studied in relation to the decision to enroll (Blau and Duncan, 1967; Sewell and Shah, 1978; Sewell and Hauser, 1975; Alwin and Otto, 1977). Researchers using the combined approach integrate the other two approaches, examining the decision process from a sequential perspective. Students' decisions to attend college evolve over a period of time often as long as four or five years, thus necessitating a longitudinal analysis of the factors involved in the choice process (Hossler et al., 1989; Stage and Hossler, 1989; Hossler and Gallegher, 1987).

These approaches have contributed greatly to our understanding of differences between individuals who decide to attend or not to attend college; however, they do not adequately explain the process for all members of society. The variables found to be most significantly correlated with college attendance for White middle-class individuals are not as closely related to postsecondary decision making for African Americans and Hispanics (Bateman and Hossler, 1996; Portes and Wilson, 1976; Kerckhoff and Campbell, 1977). For members of these groups, and for many White adolescents as

well, additional information is needed to more fully understand the college choice process.

Participation of Minority Groups in Higher Education

Higher education in the United States has been touted as the best in the world, the most accessible, the most diverse and of the highest quality. Henry Rosovsky, while serving as the Dean of the Faculty of Arts and Sciences at Harvard University, observed that "fully two thirds to three quarters of the best universities in the world are located in the United States." (1990, p.29)

While many might take exception to the quality claim, certainly access and diversity are attributes unequaled by other nations. According to the Census Bureau, in 1994, 45.2% of the adults in this country had attended or were attending college (1994). There are 4,096 institutions of higher education in this country, ranging from small liberal arts colleges to massive multiversities, from junior colleges focused on teaching to Research One, Doctoral granting institutions (Chronicle of Higher Education, 1999). Higher education in the United States is, on the surface, very accessible and diverse. Our colleges and universities may not be as diverse as we think, however; and for some members of minority groups, access to higher education may not be readily available.

When studying the participation of minority groups in higher education, enrollment trends give mixed information. Data show that of the 14,305,658 college students attending in 1994, 74.14% were White, 9.86% were African American, 6.91% were Hispanic, 5.06% were Asian American and .85% were Native American (National Center for Educational Statistics, 1994). Since corresponding census figures for 1990

list Whites as comprising 80.3% of the nation's population, African Americans 12.1%, Hispanics 9%, Asian Americans 2.9% and Native Americans .8%, equal access varies by group (Bureau of the Census, 1994). Asian Americans comprise a greater portion of those attending than their corresponding percentage of the population, while Whites, African Americans and Hispanics comprise less. Further, during the past decade, minority groups have experienced increases in their relative participation. A decade earlier in 1984, 80.22% of all college students were White, 8.79% were African American, 4.37% were Hispanic, 3.19% were Asian American and .69% were Native American (Chronicle of Higher Education, 1995). In the ten year period between 1984 and 1994, all groups other than Whites increased in their relative participation.

For policy makers concerned with the participation of minority groups in higher education, these figures are encouraging. Although enrollment figures for African Americans and Hispanics fall short of national demographics, these two groups are increasing their relative numbers. These data, however, still do not give a complete picture of access to college. Within the general categories discussed, subgroups exist which are not participating at representative rates, and, in some cases, are losing ground. One such subgroup is African American males.

In 1976, African American males made up 4.4% of the college population, but in 1988 their numbers had fallen to 3.5%. In the decade of the 1990's, the participation of African American males has slightly increased to 3.8%, but this subgroup is clearly still under-represented in relation to their total population (National Center for Educational Statistics, 1994).

Lost talent is a term first introduced by Hanson (1994) to characterize students whose educational attainment falls short of their expectations or aspirations. According to Hanson, this occurs when students who demonstrate signs of initial talent, have educational expectations which are less than those to which they aspire, have reduced expectations over time, or are unable to achieve their initial expectations. Batemen and Kennedy (1997) identify African American males as the population which may most illustrate the concept of lost talent. Research indicates that African American males differ little from White males in their aspirations to attend college (Hauser and Anderson, 1991). Yet, when attendance figures are studied, it is clear that this population does not attend college with the same frequency as their White counterparts. For many in this group, aspirations remain unfulfilled.

Mickelson (1990) provides an insight into the lack of fulfillment of college aspirations for members of minority groups with her discussion of the dichotomy between the abstract and concrete attitudes which many of these individuals may have toward education. From the abstract perspective, education has been historically viewed as a means of self-improvement. Thus, past oppression, poverty, and social exclusion can be overcome by educational attainment. From the more concrete perspective, minorities have experienced the realities of racial prejudice, either personally or vicariously, which negate the premise that education is the panacea for social injustices. When members of these groups become educated and still face oppression and exclusion, the value of a college education becomes somewhat diminished. Because of the abstract views, many members of minority groups aspire to attend college; however, the concrete realities may act as a deterrent to actual matriculation.

Statement of the Problem

The problem addressed by this study was three-fold. First, as previously stated, existing models which have been developed to explain factors which influence youths to pursue a college education have typically focused on economic and sociological aspects of the college choice process. Variables such as parental encouragement, parental education level, student's academic achievement, high school academic track and participation in extracurricular activities (Hossler et al., 1989; Paulsen, 1990) have all been identified by previous research as being correlated with aspirations and expectations of adolescents to attend college. A relationship exists between these variables and students' desires to attain a postsecondary education, but existing research has not demonstrated how these factors actually influence the individual in the decision making process. In what ways are students' psyches effected that result in students being motivated to want to attend college? We have yet to fully understand the cognitive and affective processes which students undergo when considering postsecondary school attendance. More particularly, there have been no known studies that examined the relationship of theory-based psychological variable such as self-efficacy and locus of control with student aspirations and expectations to attend college. Thus, there was a need to identify and study student personal/psychological variables to develop a more comprehensive theory of the college choice process.

As previously stated, a second problem with existing models explaining college choice is that they are not sufficient to explain this complex process for minority youth. Research has identified the five variables listed above as being significantly correlated

with higher education aspirations and expectations of White adolescents. However, these factors do not correlated as strongly when members of minority groups are studied (Hossler and Maple, 1992; Batemen and Hossler, 1996). There is, then, a paucity of information about the college choice process for minorities. There was not adequate information describing the factors which influence members of these groups to pursue a postsecondary education.

A third problem was the conceptual gaps in our understanding of the self-efficacy construct. Early conceptual discussions of self-efficacy held the construct to be completely situation or task specific with little possibility of competency beliefs crossing from one domain to the next or occurring at a general level (Bandura, 1977). More recent research, however, has begun to recognize situations where self-efficacy does generalize across behavior domains (Pajares, 1996). As will be discussed later, Bandura (1997) now recognizes processes through which mastery experiences can produce some degree of generality in personal efficacy. Further, two sub-constructs of self-efficacy have been identified in the literature surrounding the construct, one addressing specific capabilities and the other addressing persistency (Bandura, 1982). Capabilities are an individual's judgment about one's ability to execute courses of action required to deal with specific situations, while persistence involves the length of time an individual will continue in performing a specific behavior when faced with aversive experiences (Bandura, and Schunk, 1981). There was a need, then, to further explore the conceptualization of self-efficacy to better understand the generalizing nature of the construct and to discern the relationship between the construct's capabilities and the persistence notions.

Theoretical Constructs

Although no study had yet been conducted examining the relationship between self-efficacy and locus of control, and college aspirations and expectations, research has closely linked self-efficacy and locus of control to academic achievement (Thomas et al., 1987; Wilhite, 1990; Lent et al., 1986; Mickelson, 1990; Pajares, 1996). Academic achievement, in turn, has been found to be a correlate of college aspirations and expectations (Manski and Wise, 1983; Peters, 1977; Jackson, 1978; Yang, 1981; Carpenter and Fleishman, 1987; Tuttle, 1981; Hossler and Stage, 1992). This strongly suggests that relationships exists between self-efficacy and locus of control, and postsecondary aspirations and expectations. An elaboration of the rationale behind these relationships follows in the discussion of self-efficacy and locus of control as major theoretical constructs framing this study.

Self-Efficacy

Self-efficacy is defined as individual's judgment of how well one can execute courses of action required to deal with prospective situations (Bandura, 1997). It is a self-system which serves a regulatory function for behavior by providing individuals with the ability to alter their environments and influence their own courses of action (Pajares, 1996). Theoretically, self-efficacy is a primary mediator of behavior and behavioral change, determining whether a given behavior will be initiated, the amount of effort to be expended, and how long a behavior will be maintained. Low self-efficacy regarding a specific task or behavior often will lead to avoidance of the task or behavior, while high self-efficacy will usually lead to increases in the frequency a task

or behavior is attempted (Bandura, 1977). By undertaking activities and selecting situations we judge to be within our capabilities to successfully complete and avoiding those where we expect failure, we make life decisions according to our perceived self-efficacy (Bandura, 1993). Conceptually, the strong interaction between behavior and life plans, and self-efficacy would lead one to expect that students' decisions to attend college would be significantly affected by their beliefs in their abilities to succeed academically. Thus, the greater an individual's efficacy for college success, the greater the likelihood one would aspire to attend.

Some empirical evidence also suggests a connection between self-efficacy and the college choice process. The larger career decision process, for instance, has been positively correlated with self-efficacy (Betz and Hackett, 1981; Taylor and Betz, 1983; Lent et al., 1986; Brooks, 1990). If college attendance is considered a career decision, then this research gives strong support to the argument that self-efficacy and the choice process are related. This study, therefore, analyzed self-efficacy as an independent variable in the college choice process. This study also analyzed self-efficacy as a mediating variable influencing the relationships between variables identified by previous research as being related to postsecondary attendance decisions (i.e. academic achievement, parental expectations, parent's level of education, participation in extracurricular activities and high school track), and college aspiration and expectations.

Bandura (1997) has identified four main sources of information which are the basis for the development of personal efficacy: enactive mastery experiences, vicarious experiences, verbal persuasion, and physiological and affective states. Enactive mastery

experiences are an individual's own experiences of performing a task or behavior, with success or failure contributing to one's expectation for future outcomes. Vicarious experiences are an individual's exposure to others' modeling the performance of a task or behavior, which impacts the individual's belief in personal abilities to duplicate the performance. Verbal persuasion is the feedback given by others regarding an individual's ability to perform a task or behavior. Physiological and affective states represent somatic information associated with performance outcomes that serves to enhance the strength of efficacy beliefs. Increased emotional arousal can also lead to stress that is detrimental to performance accomplishments.

How, then, do these sources of information for developing efficacy relate to the other independent variables in the college choice process? High school achievement, academic track and participation in extracurricular activities, three of the previously identified factors associated with college aspirations and expectations, are performance accomplishments which one would expect to effect students' perceptions of their ability to succeed in performing college work. Parental education levels, another factor associated with college choice, serve as modeling resources for students, and can be viewed as important sources of vicarious experience. Parental encouragement, the fifth factor identified with college aspirations and expectations, serves as a clear example of verbal persuasion for the student to achieve in college. Thus, these five factors appear to manifest sources of information which can foster the development of self-efficacy in students. The most significant factors contributing to a student's decision to pursue a college education are also likely to be closely associated with the development of

self-efficacy. From this information one can posit that the existence and enactment of the five traditional variables are associated with an individual's efficacy beliefs about college success, which in turn is associated with the desire to attend college.

Generalized Self-Efficacy

An additional area of inquiry for this study regarding the construct self-efficacy was the examination of the potential generalization of the variable across performance domains and from specific to more general academic tasks. Initially Bandura conceptualized the construct as task and situation specific. Thus, an individual makes a judgement about effort and personal ability in reference to some closely defined goal (Bandura, 1986). But does self-efficacy also have a generalized nature as well? Recently Bandura (1997) has acknowledged the existence of generality of efficacy beliefs. "Efficacy beliefs are structured by experience and reflective thought rather than being simply a disjoined collection of highly specific self-beliefs." (p. 51) He indicates that the development and utilization of an individual's capabilities would be severely hampered if feelings of efficacy could not be transferred across activities or settings. Adaptability would become impossible if people had to establish their sense of efficacy with each new endeavor. Bandura recognizes five processes through which mastery experiences can produce some degree of generality in personal efficacy: when similar subskills are present, when competencies co-develop, when self-regulatory or coping skills are involved, when commonalities are cognitively structured across domains and when powerful performance attainments result in transforming experiences (these processes are further discussed in Chapter 2).

For the purposes of this study the first process, similar subskills, was the basis for the examination of the generalization of efficacy. Students' efficacy in different academic disciplines and at different levels of specificity within disciplines was examined to ascertain if efficacious beliefs generalize across domains. More specifically, does an individual's efficacy in a variety of different academic subjects have an additive property where the summation of different efficacies results in an overall, generalized academic self-efficacy? Further, is there a correlation between the very specific efficacy an individual has in a particular academic subject with more general notions of efficacy held by the individual? For example, within the context of mathematics, does one's efficacy for solving a particular algebra problem generalize to one's self-efficacy to do algebra and then to one's self-efficacy to do other kinds of mathematics?

Locus of Control

Locus of control is defined as the extent of one's belief that personal behavior is caused by internal or external factors. Internal control or internality refers to an individual's belief that events are contingent on one's own behavior or ability. External control or externality refers to the belief that events are caused by factors beyond an individual's control. (Rotter, 1966)

For years scholars have been concerned with the apparent paradox between the aspirations of members of minority groups to become better educated and the academic achievement of the groups (Mickelson, 1990). On the one hand, education has traditionally been viewed as a means to overcome the past effects of poverty and

oppression; and on the other, many minorities have not translated the desire for education into corresponding levels of school achievement (Coleman et al., 1966; Ogbu, 1978; Patchen, 1982; Crichlow, 1986; Sleeter and Grant, 1987). As previously noted, Mickelson (1990) explains this paradox as being the result of the dichotomy between abstract and concrete attitudes which many members of these groups have toward education.

In industrial societies, value systems frequently are multilayered, containing both dominant and subordinate beliefs (Parkin, 1976). Most individuals hold duel systems, one which reflects society's abstract norms and another which is based on the everyday experiences of their lives. For individuals in a subordinate position in society (i.e. lower social-class or minority groups) the interaction of these duel systems often results in a value stretch as conflicting values compete with one another (Rodman, 1963: Dillingham, 1980). Abstract beliefs typically reflect the dominant ideology of society while concrete beliefs are the product of an individual's own reality (Mickelson, 1990).

In terms of attitudes toward the value of education, abstract beliefs usually reflect the American Dream concept that education provides opportunity. As such, education fosters social mobility and can be viewed as a remedy for poverty, unemployment and past oppression (Mickelson, 1990). These beliefs mirror a traditional view of our society, and reflect an ideology that hard work and perseverance will ultimately result in success.

Concrete attitudes toward education, on the other hand, are not grounded in ideological beliefs or hopes for the future; they are the result of personal or vicarious experiences. For minorities, education has not always meant greater social mobility or an escape from poverty, unemployment or oppression. Ogbu (1978) argues that a job ceiling exists that excludes members of these groups from competing for jobs for which they are qualified or being confined to the least desirable jobs. On the concrete level, education may not be the panacea for all the inequities faced by members of minority groups.

The extent to which individuals believe in abstract or concrete views of education largely determines how much effort they will put forth in school and, therefore, the level of academic achievement they will experience (Mickelson, 1990). It is from this perspective that an individual's locus of control becomes important. An individual's orientation toward internality or externality will largely determine the extent to which one views education from either an abstract or a concrete perspective. Individuals with a strong internal locus of control will tend to hold a personal view of being in control of their future and thus, be apt to believe educational achievement will produce social and economic rewards. Conversely, people with an external locus of control will tend to see others as controlling their destiny, therefore increasing the likelihood of discounting the potential positive impact of education (Mickelson, 1990).

For members of minority groups involved in the college choice process, the implications are readily apparent. One would expect that a strong relationship exists between individuals' beliefs in the value of an education, their locus of control, and

their aspirations to attend college. Those who have an internal locus of control and view education as a means to social mobility and personal success are likely to have high aspirations and expectations to get a college education. Those who have an external locus of control and discount the benefits of an education are likely to have reduced aspirations and expectations.

Distinction Between Constructs

It is important to make clear the distinction between the constructs locus of control and self-efficacy, to avoid the appearance of a tautology. The two constructs have some commonality in that both deal with personal belief systems. Locus of control reflects beliefs about causal attributions for behavior. Self-efficacy reflects beliefs about executing courses of action to accomplish performance outcomes. Additionally, self-efficacy is assessed at a microanalytic level, while locus of control is more global and deals with general self-perceptions (Pajares, 1996). Self-efficacy is generally considered to be more situation and task specific than locus of control. Thus, an individual may be very efficacious about one endeavor, but have low self-efficacy about another. A student may have strong efficacy beliefs about the capability to successfully do mathematics, but very weak efficacy beliefs about ability to do English. An individual's belief about internal or external factors of control tend to be more universal (Lefcourt, 1982). The control we feel over our own lives crosses over from one situation or task to another.

The conceptual distinction between self-efficacy and locus of control has recently been clarified by Bandura (1997). Beliefs that one can produce certain actions

(perceived self-efficacy) are clearly distinct from beliefs about whether actions affect outcomes (locus of control). Bandura (1997) provides considerable empirical evidence that perceived self-efficacy and locus of control have little or no relationship to one another.

An Expanded College Choice Model

Figure 1 provides a diagram of Alwin and Otto's (1977) sociological model which recognizes academic and social influences as mediating other variables' influences on aspirations. Hossler and Stage's (1992) model, which emphasizes parental and peer encouragement, ability and high school experiences, is presented in Figure 2. Neither of these models, however, accounts for possible influences of students' personal/psychological factors. Therefore, the conceptual framework presented in Figure 3 is an expanded model of college choice.

In this expanded college choice model, the factors identified by previous research - parental encouragement, parents' level of education, academic achievement, academic track and participation in extracurricular activities - are used as independent variables along with the addition of potentially important personal/psychological variables, self-efficacy and locus of control. Combined, these factors are posited to be closely correlated with the dependent variables, college aspirations and college expectations. Self-efficacy and locus of control are also shown as mediating variables linking the relationships of the other five independent variables with college aspirations and expectations. This suggests that the strength of the relationships between variables in the expanded college choice model increases when these two psychological variables are considered.

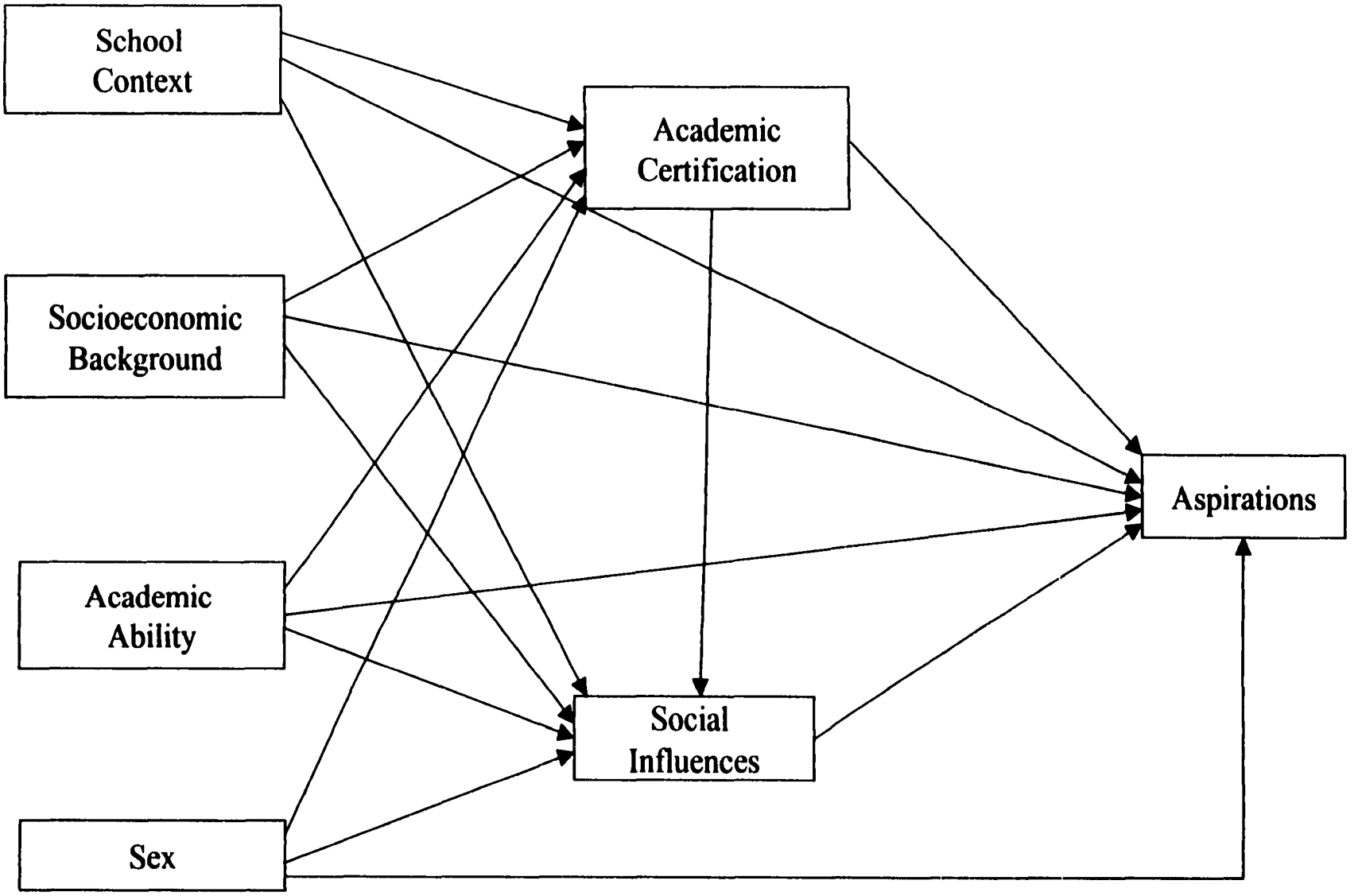

Figure 1
Alwin and Otto's Sociological Model of College Choice

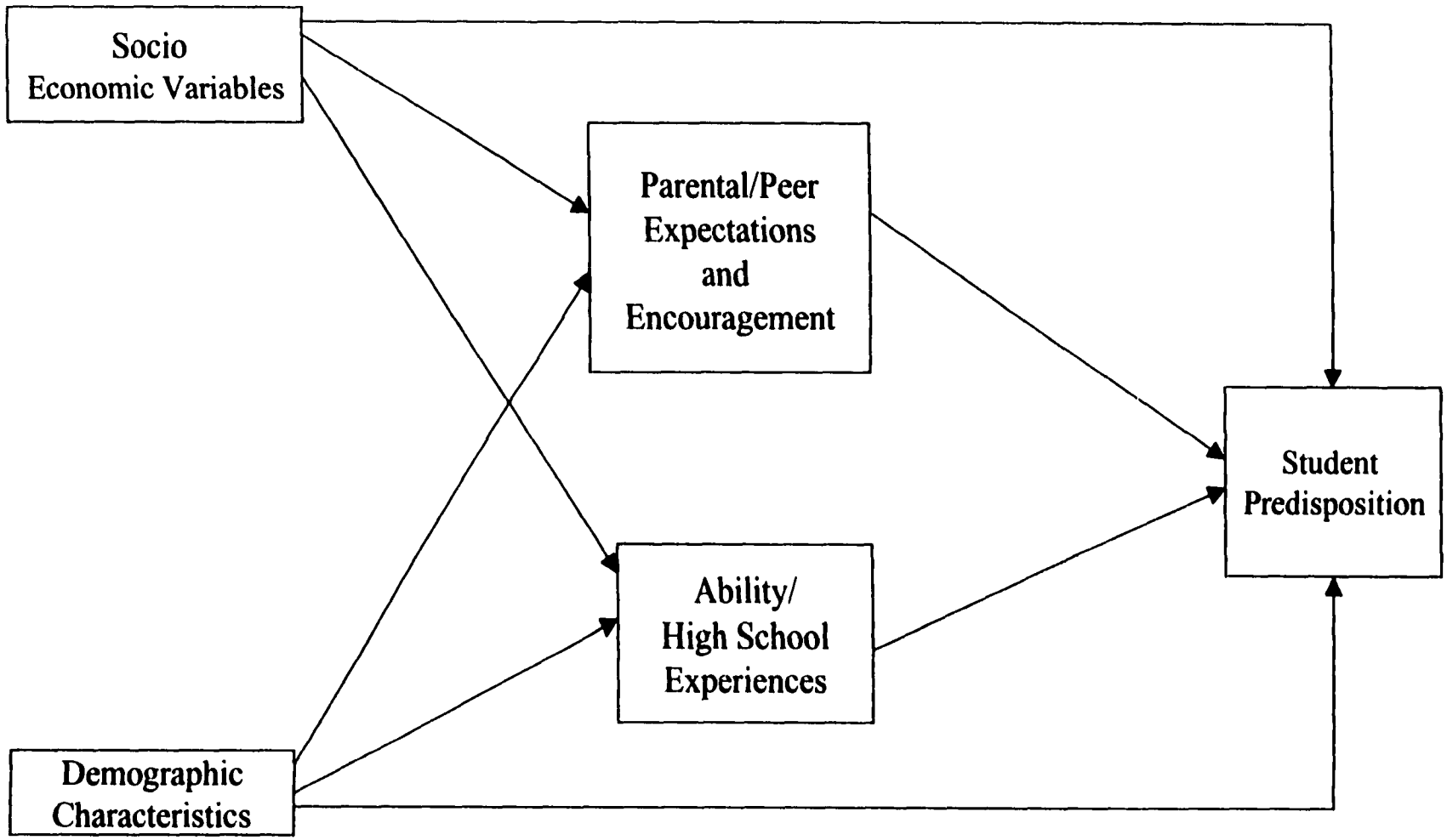

Figure 2
Hossler and Stage's Combined College Choice Model

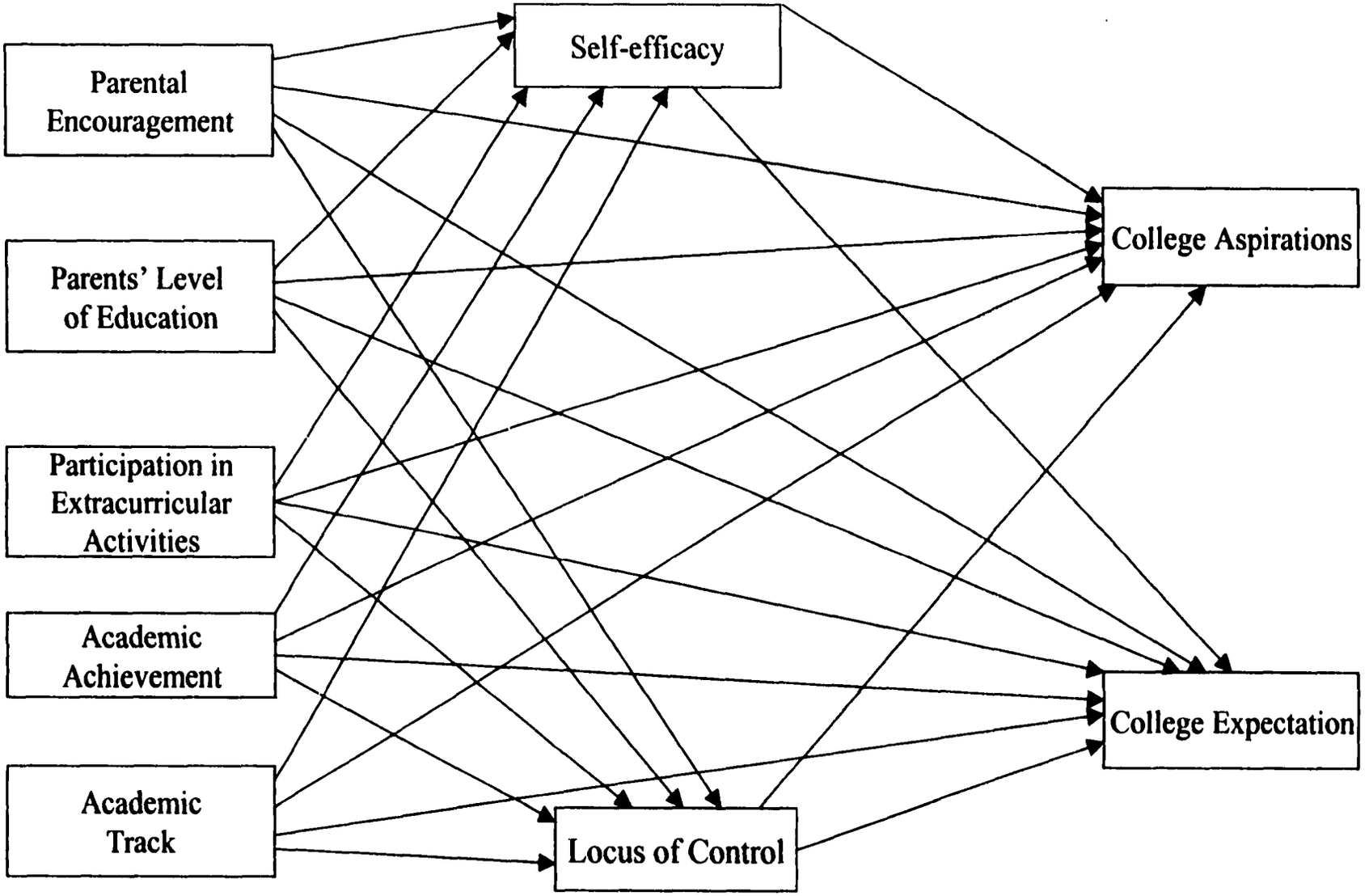

Figure 3
Expanded College Choice Model with Psychological Factors

Thus, the constructs self-efficacy and locus of control were considered in two ways as variables in this study. First they were analyzed, along with the other independent variables, for possible relationships with the dependent variables, college aspirations and college expectations. Second, the contributions of self-efficacy and locus of control as mediating variables for the other independent variables and the dependent variables were explored.

Researchers have divided the college choice process into numerous stages (Kotler, 1976, Hanson and Litten, 1982; Litten, 1982; Jackson, 1982; Hossler and Gallegher, 1987). Because of its wide application and its elaboration of previous models, the three-phase model of Hossler and Gallagher (1987) was used as a basis for this study. This model divides college choice into a) the predisposition phase, b) the search phase and c) the choice phase. During the predisposition phase individuals make tentative decisions whether or not to continue their formal education by attending college. During the search phase individuals investigate and evaluate schools in which they are interested. During the choice phase individuals develop a choice set of institutions to which they apply and make a final matriculation decision (Bateman and Hossler, 1996).

It is during the predisposition phase that aspirations and expectations of postsecondary attendance reach fruition. Typically this phase begins when students are in the eighth or ninth grade, although for many individuals the decision to attend college is made at a much earlier age. Previous research has identified thirteen factors which influence students in formulating postsecondary aspirations and expectations (see

Chapter 2 for a full discussion of these factors); however, five emerge as the most influential. These are a student's academic ability, parents' level of education, parental encouragement and support, academic track and participation in extracurricular activities. For expediency these five are referred to in this study as the traditional factors or variables. The traditional factors were used as independent variables in this study along with self-efficacy and locus of control.

College aspirations and college expectations serve as dependent variables for this study. These constructs represent the primary components of postsecondary educational plan formulation during the predisposition phase of the college choice process. Although the majority of the literature treats these factors as analogous, or considers only one of the factors, this study will treat these constructs as distinct. The differences in the two are apparent in their definitions.

College aspiration is defined as the education that individuals hope to achieve upon graduation from high school (Hanson, 1994). Here the significant word is hope. Student aspirations need not necessarily be realistic, nor do they have to be goals which students believe they can achieve. None the less, they are the goals which students hope to attain. College aspirations are analogous to the desires of a child viewing candy in a store window. The child wants the candy regardless of whether or not the money is available to buy it, or permission is given to make the purchase. Students aspire to go to college regardless of their skills, finances or opportunity to attend.

College expectation is defined as the education that individuals expect to achieve upon graduation from high school (Hanson, 1994). Expect is the significant

word here, as individuals' expectations reflect the assumed belief that they will attend college. Expectations are much more realistic than aspirations and are framed by the constraints of social forces which "identify, select, process, classify and assign individuals according to externally imposed criteria" (Kerckhoff, 1976, p.369). In terms of the candy store analogy, although the child hopes to get some candy, actual expectations are delineated by the constraints of money and parental approval. The child does not really expect to get any candy unless the child feels these obstacles can be overcome. Students do not expect to go to college unless they feel they have the skills, finances or opportunity to attend.

It should be noted that college aspirations and expectations are conceptually distinct from the locus of control and self-efficacy constructs. Locus of control and self-efficacy both represent belief systems that are grounded in human motivation theory. For aspirations and expectations, there is no extant literature connecting either to concepts of attribution or social cognition. Like locus of control and self-efficacy, expectations are beliefs; however expectations are an outcome rather than a motivator of human behavior. Aspirations simply are the desires, hopes or dreams of individuals and do not represent any type of belief system.

Purpose

The purpose of this study was to expand existing models previously developed in the literature pertaining to the college choice precess, particularly adolescents' aspirations and expectations to attend college. Existing models were enhanced by including important theoretical constructs well documented in social cognitive

(self-efficacy) and attributional (locus of control) theories as elements of human agency. Of particular interest was the extent to which these theoretical constructs were related to students' aspirations and expectations, and the role these constructs play in mediating linkages between traditional college choice variables and aspirations and expectations. The primary focus of the study was directed toward minority students in a large urban school district.

Significance of the Study

This study was designed to provide evidence to test existing theories regarding the way in which the constructs of self-efficacy and locus of control are related to human behavior and behavioral change. It examined the role which these psychological factors play in the decision making process. As previously stated, the existing literature examining the choice process for all populations is incomplete, and earlier models do not do an adequate job of explaining the factors which influence members of minority groups to attend college. The discussion of self-efficacy and locus of control in this study add a new approach to the literature on college choice since no known studies have attempted to link these psychological constructs to the predisposition stage of the college choice process. Conceptually, these constructs appear to be relevant to the choice process for all populations. Thus, a secondary significance of this study was the examination of the relationship between the traditional variables, the psychological variables and college aspirations and expectations for all racial groups. However, since previous research (Bateman and Kennedy, 1996b; Portes and Wilson, 1976; Kerckhoff and Campbell, 1977) has demonstrated that the traditional variables are particularly

deficient in explaining the process for minorities, this study contributes to the literature for this group.

Research Hypotheses and Questions

Both formal research hypotheses and exploratory research questions were used to frame this study. Predictive hypotheses were formulated for relationships between the independent and dependent variables where theoretical justifications could be made. Exploratory research questions were developed for other variables of interest when insufficient, past research findings or theoretical justifications were considered inadequate for the development of more formal hypotheses.

Research Hypotheses

The following primary hypotheses relative to the role of the locus of control and self-efficacy constructs in the college choice process framed this study.

Hypothesis 1

There is a statistically significant, positive relationship between adolescents' levels of academic self-efficacy and their aspirations to attend college.

Hypothesis 2

There is a statistically significant, positive relationship between adolescents' levels of academic self-efficacy and their expectations to attend college.

Hypothesis 3

There is a statistically significant, positive relationship between adolescents' internal locus of control and their aspirations to attend college.

Hypothesis 4

There is a statistically significant, positive relationship between adolescents' internal locus of control and their expectations to attend college.

Hypothesis 5

The psychological constructs of self-efficacy and locus of control account for a statistically significant amount of variation in students' college aspirations beyond that accounted for by the five traditional variables of college choice.

Hypothesis 6

The psychological constructs of self-efficacy and locus of control account for a statistically significant amount of variation in students' college expectations beyond that accounted for by the five traditional variables of college choice.

Rationale

The rationale supporting the inclusion of self-efficacy and locus of control as independent variables in the college choice model has already been thoroughly discussed. In summary, there is a strong conceptual basis for these hypotheses, as well as, empirical evidence linking these psychological constructs to other factors which have, in turn, been linked to college aspirations and expectations. Further, previous research has demonstrated a relationship between locus of control and self-efficacy and similar decision processes such as the career decision making.

Research Questions

In addition to the primary research hypotheses, a number of supplemental research questions were also addressed by this study. Primary among these questions

were four questions which addressed one of the major focuses of the study, the possible mediating roles of locus of control and self-efficacy between the traditional factors of college choice and college aspirations and expectations. Another research question addressed by the study was whether differences exist between minority and other students in the college choice process. Additionally, two research questions pertaining to the theoretical understanding of the self-efficacy construct were explored. The first addressed the generalization of self-efficacy beliefs across academic domains, and the second explored the competency and persistence notions of the self-efficacy construct.

Question 1

Does the academic self-efficacy construct serve a mediating role in the relationship between the traditional variables of college choice and college aspirations?

Question 2

Does the academic self-efficacy construct serve a mediating role in the relationship between the traditional variables of college choice and college expectations?

Previous research has reasonably well documented the significance of sociological and economic factors in the college choice process. A student's academic ability, parents' level of education, parental encouragement, academic track and participation in extracurricular activities have all been shown to be positively correlated with college aspirations and expectations. These relationships exist; however, the dynamics of these relationships are not clear.

As previously stated, self-efficacy is developed through enactive mastery experiences, vicarious experiences and verbal persuasion (Bandura, 1977). Three of the traditional variables - high school achievement, school track and participation in extracurricular activities - can be viewed as enactive mastery experiences. Parental education levels serve as performance models for students and can be considered to be a vicarious experience. Parental encouragement can be viewed as persuasion. Thus, the five traditional variables related to students' aspirations and expectations for college attendance were considered to also have the potential to affect the development of self-efficacy. It, therefore, is likely that self-efficacy has a significant role in the college choice process as a factor mediating linkages between the traditional variables and students' college aspirations and expectations.

Question 3

Does the locus of control construct serve a mediating role in the relationship between the traditional variables of college choice and college aspirations?

Question 4

Does the locus of control construct serve a mediating role in the relationship between the traditional variables of college choice and college expectations?

The construct, locus of control, was also considered to be conceptually linked to the five traditional variables and likely to serve a mediating role in the college choice process. To understand this relationship it is necessary to first discuss Rotter's (1966) social learning theory and the relationship of his theory to locus of control. According to Rotter, a reinforcement acts to strengthen an expectancy that a particular behavior or

event will be followed by that reinforcement in the future. For example, if a student studies diligently for an examination and subsequently receives a good grade, it might be expected that studying hard in the future will result in additional good grades. Likewise, if a behavior is not followed by reinforcement, then the expectation for future reinforcements will diminish. When the reinforcement occurs as the result of the individual's efforts, the individual will tend to view the reinforcement to be contingent on one's efforts. When it does not occur, the individual will tend to view personal efforts as unproductive.

Turning to the five traditional variables, all represent the potential for adolescents to receive reinforcements to their behavior. Academic achievement, academic track and participation in extracurricular activities usually are contingent on some level of performance or commitment by the individual and, thus, also represent situations where a student's level of effort will result in a corresponding level of reinforcement. Parental encouragement does not give direct reinforcement for behavior, however, one would expect the support, or lack of support, given by parents would impact a student's expectations for reinforcements. Finally, the success, or lack of success which parents have in school, model for students a level of attainment which can be expected and, thus, reinforce the students' own expectations.

The five traditional variables, then, all represent to a certain degree behavior which can act to strengthen or weaken the expectancy for reinforcements in the future. When a student expends the effort necessary to achieve academically or in related school activities, receives encouragement from parents, or has parents who model

academic success and then achieves success, the student will tend to expect further success and attribute the reinforcements to personal actions. Conversely, when the student expends the effort or receives parental feedback and does not achieve positive results, further successes will not be expected nor will the reinforcements be attributed to personal efforts. When the student receives positive reinforcements in the area of the five traditional variables he or she will tend towards a greater degree of internality and, thus, have greater aspirations or expectations for college attendance. When the student fails to receive positive reinforcement, however, he or she will tend towards a greater degree of externality and have diminished aspirations or expectations for college attendance.

Question 5

Do significant differences exist in the model of college choice based on race?

In addition to providing information regarding the college choice process by examining psychological factors, this study examined the possibility that motivators to attend college are different for different racial groups. Since little is known about the college choice process for minority groups, this study examined the college aspirations and college expectations of African American, Hispanic and White students separately, as well as in the aggregate.

Question 6

To what extent can an individual's self-efficacy beliefs be generalized?

Two parts to this question were addressed in this study. First, do self-efficacy beliefs generalize across academic domains; and second, do sub-categories of self-efficacy beliefs contribute to a more generalized notion of self-efficacy. Although the

self-efficacy construct was first conceptualized as situation or task specific (Bandura, 1977), recent research has suggested that efficacy beliefs may, in some cases, transfer across activities or settings and the construct has some cumulative properties (Bandura, 1997).

Question 7

What is the relationship between self-efficacy beliefs and students' estimates of persistence motivation related to academic tasks?

Bandura (1997) defines perceived self-efficacy beliefs in terms of one's capabilities to organize and execute courses of action required to produce given attainments. Further, he explains that efficacy beliefs have diverse effects including persistence in the face of obstacles and failures. The strength of self-efficacy beliefs also determines the length of time an individual will persist in performing a specific behavior when beset with obstacles and aversive experiences (Bandura and Schunk, 1981). The relationship between efficacy beliefs and academic persistence was explored in this study as well.

Definition of Terms

The section that follows provides conceptual and operational definitions for the major variables of the study.

Self-Efficacy

Conceptual Definition

Self-efficacy, as a theoretical construct of human behavior, was defined as an individual's "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p.3).

Operational Definition

Self-efficacy will be measured by the academic section of Bandura's (1989) Children's Self-Efficacy Scale (Appendix 2, questions 4, 5, 8, 9, 10, 11, 12 and 13). In addition to the questions asked by Bandura, five additional questions were added to allow for the measurement of generalized self-efficacy and persistence.

Locus of Control

Conceptual Definition

Locus of control was conceptually defined as the extent to which one believes that internal or external determinants control life experiences. It is the degree to which an individual perceives that the reward of an event or activity follows from, or is contingent upon, one's own behavior or attributes versus the degree to which the individual feels the reward is controlled by forces outside one's self or may occur independently of one's own actions (Rotter, 1966).

Operational Definition

Locus of control was operationally defined by the Rotter (1966) Internal-External Locus of Control Scale (Appendix 2, questions 17-45).

College Aspirations

Conceptual Definition

College aspirations are the educational attainments which individuals hope to achieve after leaving high school (Hanson, 1994). Aspirations may not necessarily be based on a realistic appraisal of one's academic talents or on the belief that one will actually be able to attend college. They are, instead, the hopes, desires or dreams of an individual to one day have the opportunity to attain a postsecondary education.

Operational Definition

Aspirations were measured by asking students to respond to a question asking if they want to attend college (Appendix 2, question 47).

College Expectations

Conceptual Definition

College expectations were conceptualized as the continued education that individuals expect to achieve upon graduation from high school (Hanson, 1994). Expectations are grounded in a practical assessment of one's academic talents and are raised or lowered over time as adolescents experience successes or failures. They are what an individual considers reasonable, due or necessary (Guralnick, 1990).

Operational Definition

Expectations were operationalized by asking students to indicate if they expect to attend college (Appendix 2, question 48).

Parental Encouragement

Operational Definition

The level of parental encouragement was ascertained by asking students to report their perceptions of their parents' expectations for them attend college using a question (Appendix 2, question 50) taken from the National Education Longitudinal Study of 1988 User's Manuel (U.S. Department of Education, Office of Educational Research and Improvement, 1992).

Parental Educational Level

Operational Definition

Parental educational level was ascertained by asking students to respond a question (Appendix 2, question 51) taken from the National Education Longitudinal Study of 1988 User's Manuel (U.S. Department of Education, Office of Educational Research and Improvement, 1992).

Academic Achievement

Operational Definition

Academic achievement was measured by the students self reported grades in all academic subjects using a question (Appendix 2, question 46) taken from the National Education Longitudinal Study of 1988 User's Manuel (U.S. Department of Education, Office of Educational Research and Improvement, 1992).

Academic Track

Operational Definition

High school academic track was ascertained by asking students to respond to a question (Appendix 2, question 53) taken from the National Education Longitudinal Study of 1988 User's Manuel (U.S. Department of Education, Office of Educational Research and Improvement, 1992).

Participation in Extracurricular Activities

Operational Definition

Students were asked to indicate the extent of their involvement in different types of extracurricular activities using a question (Appendix 2, question 52) taken from the

National Education Longitudinal Study of 1988 User's Manuel (U.S. Department of Education, Office of Educational Research and Improvement, 1992).

Limitations

1. Since this study utilized ninth-grade students as the primary sample (see Sample Design in Chapter 3), the accuracy of the responses may be of concern. The knowledge level of the students and the seriousness with which they completed the measures may have limited the reliability of the data. Further, the study may have been limited by the use of volunteers.

2. The generalizing of the study findings may be limited to populations similar to those used in the study.

Chapter Summary

This chapter provided an overview of the study, a brief review of pertinent literature defining the study variables and their posited relationships, the problem(s) addressed by the study, the significance/importance of the study, the formal hypotheses tested and research questions explored and conceptual and operational definitions of the study variables. Chapter 2 provides a more detailed review of the literature that serves as the foundation for the study.

CHAPTER 2: REVIEW OF RELATED LITERATURE AND RESEARCH

Introduction

Chapter 2 reviews related literature and research pertinent to the college choice process and the variables discussed in the conceptual framework presented in Chapter 1. Included in this chapter is a) an overview of the college choice process, b) a review of the variables previously identified as predictive of post secondary attendance, c) a review of the variables and models associated with the choice process for minority groups, d) a discussion of human behavior theory and the role of self-efficacy in the college choice process, and e) a discussion of social learning theory and the role of locus of control in the college choice process.

Overview of the College Choice Process

The college choice process has received considerable attention during the past thirty years as governmental policy makers, institutional recruiters and educational leaders have labored to discern how students decide about college attendance. Educational researchers have also examined the topic and in the past fifteen years have made great strides in extending our understanding of the process. Research on college choice can be divided into three categories of study, that which takes an econometrics approach, that which take a sociological approach, and that which combines the two approaches (Jackson, 1982).

College Choice Models

The Econometrics Approach

The econometrics approach to college choice examines the economic benefits of college attendance. Students, it is postulated, weigh the personal economic advantages of attaining a college degree against the cost of attendance and other foregone opportunities. (Bishop,1977; Fuller et al., 1982; Kohn et al., 1976; Nolfi, 1978; Manski and Wise, 1983). "A youth attends college if, relative to the best non college alternative, there is at least one college that is simultaneously desired and possible to finance." (Bishop, 1977, p.287) Students are perceived as consumers who strive to maximize the expected utility of the choice they make (Hossler, et al., 1989). The differential in future earnings expected from a college education as opposed to those expected from a non-college alternative are also considered by the prospective student (Bishop, 1977; Fuller et al.; 1982, Nolfi, 1978). The costs of college attendance have also been examined in relation to the risk one takes in choosing to attend (Young and Reyes, 1987). Both costs and risks have monetary and non-monetary components, and the perspective student seeks the enrollment opportunity which minimizes both of these factors.

The Sociological Approach

The sociological approach to college choice identifies a variety of social and individual factors which influence aspiration for college attendance. Based on Blau and Duncan's (1967) path model of the occupational attainment process, the sociological approach is primarily concerned with status attainment. Within this framework, status

attainment is the role played by the various factors in the allocation of individual positions or occupations of varying degrees of prestige or status (Sewell and Shah, 1978; Alexander, Eckland and Griffin, 1975). Family socioeconomic status, student academic ability, parental encouragement, high school academic performance and the influences of significant others (parents, teachers and peers) are examined for their effect on aspirations to attend college (Blau and Duncan, 1967; Sewell and Shah, 1978; Sewell and Hauser, 1975). A causal relationship has been found to exist between these factors and the student's perceptions of prestige associated with college attendance. High school performance and the socioeconomic status of one's family exert a positive influence on the perceptions of significant others and the expectations of parents, which, in turn, influence a student's aspirations to achieve the status commensurate with college attendance (Hossler et al. 1989). Alwin and Otto (1977) also emphasize the importance of significant others in the formulation of aspirations for college. They argue that a student's high school academic performance directs the expectations of others which direct the student's desire to pursue a college education.

The Combined Approach

The combined approach to college choice expands the econometrics and sociological approaches' focus on student decision making to a longitudinal analysis of the decision process. The decision to attend college is viewed as sequential, involving stages of students' involvement ultimately, resulting in the decision to enroll or pursue other interests. Here, the most powerful factors of the first two approaches are integrated, constructing a framework through which the decision making process can be

addressed from a policy perspective (Hossler et al. 1989). The combined approach attempts to describe the various economic and social forces that effect student decision making in order to identify opportunities to intervene in the college choice process.

Phases of the College Choice Process

The college choice process itself has been divided into a number of phases, beginning with the initial decision to attend and ending with registration at a particular institution. Kotler (1976) has described the process as consisting of seven steps: a) the decision to attend, b) information seeking and receiving, c) specific college inquiries, d) application(s), e) admission(s), f) college choice, g) registration. A parallel track for the application for financial assistance, encompassing the decision to apply for aid, the application for aid and the granting of aid, can be added to these seven stages (Hanson and Litten, 1982). Several authors have developed abbreviated versions of Kotler's multistage process, combining the seven steps into broader categories. Litten (1982) outlines a three phase model beginning with the decision to attend, followed by the investigation of institutions, which leads to application, admission and enrollment. Jackson (1982) also posits three stages, starting with the preference to attend, then the exclusion of inappropriate institutions and the formulation of a choice set, then finally the evaluation of the set and the selection of a school. Perhaps the most widely used delineation of steps is the three stage process offered by Hossler and Gallegher (1987). Borrowing from Litten and Jackson, their process is divided into the predisposition phase, followed by the search process, concluding with the formulation of a choice. Because of its wide application, this process shall be used as the basis for this study and deserves further elaboration.

The Predisposition Phase

During the predisposition phase, students arrive at the tentative conclusion to continue or not continue their formal education beyond high school. Although for many young people the assumption of college attendance begins at a very early age, frequently this phase will begin when students are in the eighth or ninth grades, when curriculum decisions effect their ability to attend college. The decisions reached at this time usually remain stable across a student's high school career (Schmit and Hossler, 1995). Research on the predisposition phase has identified a number of factors which influence student's desire to attend postsecondary institutions. They are: a) family socioeconomic status, b) student academic ability, c) gender, d) parental levels of education, e) family residence, f) parental encouragement and support, g) peer encouragement, h) encouragement from high school counselors and teachers, i) student educational aspirations and career plans, (j) quality of high school and academic track, k) the labor market and increased rates of return, l) family structure, and m) race and ethnicity (Hossler et al., 1989). Each of these shall be discussed in turn.

The Search Phase

During the second phase of the college choice process, the search phase, students collect and evaluate information about colleges and universities before selecting institutions to which to apply. Here, students are viewed as searching for the attributes and values of institutions which most closely match their educational needs (Hossler et al., 1989). Unfortunately, little research has been conducted about this phase. The information which is available, however, can be divided into three

categories, the timing of the search process, how information is obtained and the methods students use to eliminate schools from their list.

The Choice Phase

The final phase of the college choice process is the choice phase. Generally concluded during the senior year of high school, this phase encompasses two stages, the selection of an applicant set of institutions and the final matriculation decision (Hossler et al., 1989). Single institution studies dominate the research conducted in this area, as institutional administrators have endeavored to learn what attracts students to their particular schools. There are, however, a few studies which utilize large samples to determine how students choose a postsecondary institution.

Predictive Variables

Predisposition Phase

As stated above, thirteen different variables have been identified as factors influencing students' aspirations and expectations to attend postsecondary institutions. The research for each is be discussed below.

Socioeconomic Status

Research has positively associated socioeconomic status with a student's aspirations to attend college. In Australia, for example, two studies found that socioeconomic status explained a significant amount of variance in postsecondary participation for young adults in that country (Elsworth et al., 1982; Ekstrom, 1985). In the United States, Tuttle (1981), using the 1980 High School and Beyond study, reported that 6.8% of the variance in college attendance was explained by this factor. A

qualitative study of postsecondary plans of high school seniors in Pennsylvania indicated that as family income and the educational level of parents increased, students began to think about their college plans earlier (Gilmour et al., 1978). In her study, Hansen (1994) found that students from lower socioeconomic families were more likely to become "lost talent" casualties than students from higher socioeconomic families.

Not all research has found family socioeconomic status to have a direct impact on post secondary participation rates. Using multiple-regression techniques, Jackson (1986) conducted a comparison of postsecondary rates from the National Longitudinal Study (NLS) of 1972 and the 1980 High School and Beyond (HBS) study. He found socioeconomic status to explain a less significant 3% of the variance in the NLS sample, and 4.4% in the HSB study. Similarly, Yang (1981) found this factor to be less significant when parental educational background and parental encouragement were controlled, and interviews conducted by Leslie et al. (1977) found that socioeconomic status was not closed related to student plans to attend college.

The discrepancy in the research results may be explained by Hossler et al. (1989) who write "that SES does have an impact on predisposition; however, the impact may not be direct." (P. 252) This is supported by studies using causal modeling techniques. In a path analysis study, Marini and Greenberger (1978) found that socioeconomic status explained 8.9% of the variance of college ambition in young men and 12.2% of the variance of academic achievement for young women. Carpenter and Fleishman (1987), also using path analysis, reported that socioeconomic status, mediated through parental encouragement, was indirectly related to student plans to

attend college in Australia. Finally, Tuttle's 1981 study found the impact of socioeconomic status to be indirect, and associated with the likelihood of postsecondary enrollment through student ability and achievement.

Academic Achievement

Academic Achievement also was found to be related to aspirations of postsecondary attendance. Manski and Wise (1983) found that SAT scores and high school GPA were the most significant correlates of who applied to college. Two studies using NLS data both concluded that high school achievement was positively correlated with a predisposition towards a college education. Peters (1977) found high-ability students eight times more likely to attend than low-ability students and Jackson (1978) found that academic standing correlated with attendance at 12%. Yang (1981), in a longitudinal study of 1714 high school seniors using multiple regression, found that grades explained 15% of the variance in postsecondary aspirations and 12% of the variance in actual attendance rates. Three studies using path analysis (Carpenter and Fleishman, 1987; Tuttle, 1981; Hossler and Stage, 1992) all found that student ability was a significant correlate of postsecondary aspirations. Only one study, (Elsworth et al., 1982) did not conclude that academic ability and aspiration to attend college were positively correlated. The cumulative weight of the other research, however, would tend to indicate this study to be an anomaly, and that ability is related to the desire to attend.

Gender

Mixed results have been identified when gender has been studied for its relationship with enrollment patterns. In two studies using correlation analysis and LISREL path analytic techniques, women were found to have greater aspirations to attend college than men (Hossler and Stage, 1987; Stage and Hossler, 1989). Ironically, these studies found that women's aspirations remained high even though they were less likely to receive family encouragement to pursue a college education. In another study, Hanson (1994) also found that young men were more likely to have reduced or unrealized educational expectations than young women. Females, however, were found to drop out of the college choice process earlier than males, but the cumulative lost talent effect was much greater for male students. Other research has not found gender to be a factor in the college choice process. In Australia, no difference was found between men and women in postsecondary aspirations and participation (Carpenter and Fleishman, 1987; Elsworth, et al., 1982). Tuttle (1981) discovered the same results in his path analytic study.

Parental Education Level

There is a substantial evidence to suggest that the level of parental education is strongly related to the aspirations of students to attend college. Studying NLS and HSB data, Jackson (1986) found that, for each additional year of parental education, the likelihood of the student attending a postsecondary institution increased by 6%. Carpenter and Fleishman (1987) found that a strong relation exists between the father's education and a student's enrollment in college. Yang (1981) also found the father's

education level to be significant. In his study using qualitative data and multivariate analysis, he discovered that the father's level of education had a stronger relationship to student aspiring to attend college than the mother's, but that the mother's education level was more closely associated with actual enrollment. Parental educational levels were found to have both a direct and an indirect relationship with postsecondary plans. In one study, parents' education explained 9.5% of the variance in students' educational aspirations and 43.5% of the variance in the amount of encouragement that parents gave to their children to attend college (Hossler and Stage, 1992). These authors also found that the level of parents' education was the greatest correlate of students' GPAs which, in turn, were positively correlated with post secondary plans (Stage and Hossler, 1989). These findings were supported by the research of Manski and Wise (1983), who found in most income brackets, students of parents with a college education were more than twice as likely to apply to college. Only Tuttle (1981) did not find parental educational levels to be significant.

Location of Residence

The location of the family residence has also been studied with some evidence indicating it has a relationship with postsecondary participation rates. The distance one lives from a higher education institution was found to be some what significant, with students living within twenty miles of a school being more likely to attend than those living further away (Astin, 1980; Willingham, 1970; Anderson et al., 1972). The amount of variance explained by nearness, however, was found to be small in all of these studies. Anderson et al. (1972) also found that students living in urban areas were

more likely to attend college than those from rural areas. His findings are supported by Dahl (1982) who conducted a longitudinal study of Kentucky high school seniors and Lam and Hoffman (1979) who studied enrollment trends at a single Canadian university. Residence characteristics are related to the college choice process but when compared to other factors, such as parental encouragement or parental education levels, their significance is minimal.

Parental Encouragement

Parental encouragement, on the other hand, has been shown to be a strong correlate in the college choice process. In a descriptive study of high school seniors and parents, Murphy (1981) found that 42.6% of the students and half of the parents indicated that the idea to attend college was first introduced by the parents. A number of other descriptive studies also point to a strong positive relationship between parental expectations and students' aspirations (Ekstrom, 1985; Russell, 1980; Soper, 1971; Tillery, 1973).

As was the case with parental education levels, much of the relationship between parental encouragement and postsecondary plans was found to be indirect. Carpenter and Fleishman (1987) found that parental expectations of their children influenced students' perceptions of what others thought they should do, which in turn strongly influenced their decisions to pursue a college education. Hossler et al. (1989) elaborates on this indirect association, pointing to a reciprocal relationship where parental encouragement spawns achievement, which fosters a predisposition towards college, which leads to better academic performance, which motivates further parental

encouragement. Thus, parental encouragement has been found to serve as a mediating variable through which other variables, parents' education levels, gender and ethnicity, have an indirect relationship with students' educational plans (Hossler and Stage, 1992).

Other studies have also emphasized the importance of parental encouragement. One longitudinal study of students from their sophomore to senior years of high school found that as parental levels of encouragement increased, students were more likely to attend four year colleges and more selective institutions. This study also found that parental encouragement is often not verbalized, that the parents' assumption that their children will attend college is communicated indirectly through the social interaction of the family (Conklin and Dailey, 1981). Sewell and Shah (1978), using NLS data found parental encouragement to be more closely associated to postsecondary aspirations than any other factor, explaining 37% of the variance.

Peer Encouragement

When compared with parental encouragement, peer encouragement and support appear not to be as strongly associated with predisposition toward college attendance (Kandel and Lesser, 1968; Hossler et al., 1989). Studies show, however, that the attitudes of one's contemporaries do have some relationship to postsecondary aspirations. Russell (1980), Colemen et al. (1966), Tillery (1973), and Jackson (1986) all found peer encouragement to be an inportant correlate to educational plans. Hossler and Stage (1987), in their study of ninth-grade students in Indiana, on the other hand, found that individuals who were not planning to attend college were much more likely to consult their peers than those who were planning to attend. This suggests that peer

influence may not be as closely associated with the decision to pursue a college degree as it is with the decision to pursue other options. With one group of students, however, peer encouragement has been shown to be closely related to the college choice process. For students attending private schools, the postsecondary aspirations of friends was found to be one of the most closely correlated factors associated with a student's college plans (Falsey and Heyns, 1984).

Influence of Counselors and Teachers

It might be expected that high school counselors and teachers have a significant impact on students' predisposition to attend college, but research indicates that this is not the case. A number of studies found that counselors and teachers had little effect on students' decisions in this area (Ekstrom, 1985, Falsey and Heyns, 1984, Lewis and Morrison, 1975, Tillery, 1973). Three studies did find that for low-income and minority students, the reliance on counselors or teachers was higher than for other students (Ekstrom, 1985; Hossler and Stage, 1987; Lewis and Morrison, 1975). Even with these groups, however, the actual percentage of students who consulted with a counselor or teacher was far below 50%.

Student's Career Plans

Students' career plans and aspirations have been found to be closely associated with enrollment in college, however, it is questionable if they are factors in their own right, or simply are reflective of other factors. Dahl (1982), Hilton (1982), Peters (1977), and Trent and Medsker (1967) all report that over 80% of high school students who indicate they plan to enroll actually follow through with their plans. Causal

models, on the other hand, indicate that student's plans merely are the results of other, more significant influences, such as socioeconomic status, parental expectations and parental education levels (Carpenter and Fleishman, 1987; Corazzini et al., 1972). From student career plans and aspirations it appears we can gain an understanding of students' likelihood to pursue a postsecondary education, but not what is influencing them to do so.

Participation in Extracurricular Activities

Participation in Extracurricular Activities is supported by research as playing a significant roll in adolescents' desires to attend college. Stage and Hossler (1989), for instance, found involvement in high school activities to be the third strongest correlate of the predisposition to attend. Using multivariate statistical techniques, Spady (1975) found that involvement in athletics and service activities increased the likelihood male high school seniors would formulate post secondary educational plans. Likewise, Otto (1976) found that extracurricular activities increased social interaction which, in turn, raised students' aspirations to attend college. Involvement in leadership positions and artistic and athletic accomplishments were found by Willingham (1970) to be related to success in college. The findings of Hearn (1984), however, were less conclusive. In a study using multiple regression techniques, he found that some extracurricular activities support educational attainment while others detract from college aspirations. Overall, he does conclude that involvement in student government, debating clubs, drama and journalism were positively related to aspirations to attend college.

High School Quality and Academic Track

Research on the predisposition phase of college choice indicates that the quality of one's high school is not very significant in the decision process, but the academic track taken by the student is quite significant. In other words, differences among schools are generally less important than factors which vary within schools (Alwin and Otto, 1977). There are indications, however, that school quality is somewhat related to a student's predisposition (Elsworth, 1982; Falsey and Heyns, 1984). The Elsworth study was conducted in Australia and the Falsey and Heynes study examined students attending private high schools, which raises some questions whether either can be generalized to the public high school student in this country. Conversely, Kolstad (1979), using multiple regression analysis of NLS data, found that high school quality was only weakly correlated to college enrollment when socioeconomic and other background characteristics were held constant. A student's academic track, on the other hand, was found to have a role in the predisposition phase of college choice. Jackson (1986), Kolstad (1979) and Peters (1977) all ascertained its importance in their studies, although Kolstad's research found less significance than the other two studies.

Rates of Return

According to the human capital concept of educational benefit, the investment an individual makes in education will give one the ability to be a better worker when entering the labor market, and hence the ability to command higher earnings (Cohn and Geske, 1990). As a result, it would be expected that adolescents would consider the rate of return relative to a college education when deciding whether or not to attend college.

Two important questions have been asked to determine if the labor market and rates of return have an effect on the predisposition stage of college choice. First, do opportunities for employment impact students' decisions to attend postsecondary educational institutions? Second, are students concerned with the economic rate of return they can potentially receive from attending college? Generally, research on these factors indicates that the answer to both questions is no. The labor market and rates of return are not closely associated with the decision process of students to attend college.

A comparison of enrollment patterns and trends in the labor market since the 1930's by Adkins (1975) shows that enrollments have increased steadily regardless of labor market trends. Other studies have found that during times of high unemployment or recession, students have been more likely to attend college (Chressanthis, 1986; Hossler, 1984). During the 1970's, when a decline occurred in the rate of return for a college education, postsecondary enrollments increased (Bird, 1975; Mattila, 1982; Freeman, 1976). Both Bishop (1977) and Campbell and Siegel (1967) have concluded that high school students are either unaware of return rates for college attendance or they simply ignore them when making their future plans.

Family Structure

Family structure, whether the prospective student resides in a single-parent or two-parent household, has been found to impact educational attainment. Children from single parent houses have lower levels of educational attainment and are more likely to leave school before the completion of the 12th grade, than children from two-parent families (Hauser and Featherman, 1977; Keith and Finlay, 1988). These lower levels of

attainment, surprisingly have not been found to be associated with college aspirations. Although more research is needed in this area, preliminary research discerns little difference between the two groups in the desire to pursue a postsecondary education (Bateman and Kennedy, 1997).

Race and Ethnicity

Comparisons by race and ethnicity on the disposition to attend college is somewhat difficult to capture since attendance rates of minority students have fluctuated over the past thirty years. The sixties and seventies saw an unprecedented increase in minority student attendance, especially with African American students who tripled their numbers between 1966 and 1977 (Chronicle of Higher Education, 1978). From 1977 to 1985, however, the numbers slowly declined, only to rebound since 1986 (National Center for Educational Statistics, 1994). This fluctuation in enrollment makes studying the impact of race and ethnicity difficult since the factors influencing participation rates of minority groups have changed (Hossler et al., 1989). Some literature, however, is available on the subject.

Four studies which analyzed of racial differences on postsecondary participation rates all initially found race to be significant, but when socioeconomic status was controlled, the effects virtually disappeared (Ekstrom, 1985; Tuttle, 1981; Manski and Wise, 1983; Jackson, 1986). These results indicate that White students and minority students from the same income levels aspire to and pursue a college education at similar levels. Only Hanson's (1994) research demonstrated different results. She writes "Although some of the effects of race worked through the different effects of [family,

individual, and school] resources on the loss of talent, race continued to have an effect on the loss of talent when differences in levels of resources were taken into account." (P. 180)

Other studies have indicated there exist a disturbing gap between minority students' aspirations and their actual attendance. Hossler and Stage (1987) found that ninth-grade minority students reported thinking more about postsecondary education than their White counterparts, but White students were 4% more likely to indicate they planned to attend. Brown (1982), using NLS and HSB data, found that the number of African American students aspiring to go to college increased between 1972 and 1980 but fewer actually attended. In a study of African American males, Hauser and Anderson (1991) found that African American and White male students had similar plans and aspirations to attend college, but actual attendance rates indicate the African Americans are more likely to alter their plans away from enrollment. Again, Hanson's (1994) research had contradictory results. She found that White high school seniors were more likely to experience reduced or unrealized educational expectations. This difference may be explained, in part, by the fluctuations in enrollment rates of African Americans. The Hossler and Stage, and Brown studies were conducted when enrollments were declining for this group and Hauser and Anderson looked at African American males only, a group which has continued to experience low enrollments rates. Hanson's study was conducted in the early 1990s when the enrollment of African Americans, in the aggregate, was increasing.

From the research conducted on the predisposition phase, five factors emerge as the ones most significantly related to students' decisions to pursue a college education. They are: student academic ability, academic track, parental levels of education, parental encouragement, and participation in extracurricular activities. Two factors, educational and career aspirations and socioeconomic status, are closely correlated to postsecondary plans; but when other variables are controlled, the relationships diminish. The influence of peer encouragement was found to be only moderately correlated to college plans. The other factors, gender, family residence, influence of high school faculty, labor market and return rates, high school quality and race, have less significance in the decisions of students whether or not to go to college.

Search Phase

Research has pinpointed the junior year of high school as the time when students are most active in the search phase of the college choice process. At this time, most have decided whether or not they want to pursue their education beyond high school; and those who do, begin looking at possible schools. Stewart et al. (1987) found that 80% of the students attending Michigan State University had begun their investigation of colleges during their junior year. Another study found that, as juniors, 72% of Pittsburgh high school students had developed their list of schools from which to choose (Gilmour et al., 1978). For African Americans, the search process generally begins later, finishes later and involves the consideration of more schools than for White prospective students (Litten, 1982).

Other research concurs with these findings but indicates that the search phase often extends into the first part of the senior year as well. Lewis and Morrison (1975), in a series of interviews with high school seniors, found that many were adding to their list of potential schools as late as October of their senior year. Gilmour et al.'s (1978) study found students concluding their search earlier, but also found the search did not usually finish before the beginning of the senior year.

Where students receive their information about potential schools has also been studied. Sadly, research suggests that students frequently are never well informed about their potential choices and much of the search process is haphazard (Jackson, 1982; Lewis and Morrison, 1975; Litten, 1982). In one study of high school seniors, Cibik (1982) found that students first learn about colleges from friends (50.6%), a campus visit (12.7%) or a campus publication (11.7%). The most frequently used sources of information, according to Lewis and Morrison (1975), are a) catalogs, b) campus visits, c) guidance counselors, d) students attending a college and e) admissions officers. They also found that the measures taken by students to acquire information were (in order of rank): writing away for catalogues, campus visits and interviews, talking to guidance counselors, using catalogues available at their schools, and talking to college students.

There are indications that the search process differs, depending upon a student's socioeconomic class. Tierney (1980) found that students from families with high socioeconomic status had access to more information sources than students from families with low socioeconomic status. Ekstrom (1985) found that students in college preparatory high schools tracks consulted with parents, counselors and friend about

potential college choices, while students in vocational tracks tended to talk only with friends. Litten (1982) also found that students from families with lower socioeconomic status have access to less information, are less likely to have college educated parents and have fewer contacts with well educated role models. Another study found that colleges contribute to the lack of information to less affluent students by excluding students who reside in low income zip code areas from their mailing lists (Miller, 1983). Unfortunately, no research is available which examines the lack of information available to students with low socioeconomic backgrounds and their subsequent progress through the search phase. Also missing is information about students based on their racial or ethnic backgrounds.

Three studies have briefly addressed the process students use in eliminating institutions from their lists of schools to attend. Geographic location and cost considerations are the first factors students use to eliminate schools, according to Gilmour et al. (1978), followed by the academic programs offered (or not offered) by the institution. The other two studies also found that location and cost were the most considered factors used in culling down a list of potential schools (Tierney, 1980; Astin, 1980).

Choice Phase

Many of the factors related to students' decisions during the predisposition phase have also been studied for the choice phase, however, the factors which were most closely were associated with students' selection of an institution differ from those which were significant earlier. The significance of academic ability and parental

encouragement were found to remain strong, but now are accompanied by the family socioeconomic status. Parental education level, which was closely associated with predisposition, was found to have only a moderate correlation with the actual college choice. Race and ethnicity were also found to be moderately related to the choice of a college and high school quality and peer encouragement were found to be weakly correlated to the selection process. No information was found about the other factors - gender, encouragement of high school counselors and teachers, student aspirations and career plans, and the labor market and rates of return - and their relationship to the selection of a college (Hossler et al., 1989).

Students academic abilities have been shown to be related to students applying to and attending more selective institutions and deviating less from their initial educational plans. Maguire and Lay (1981) found that students with high GPAs were more likely to seek enrollment at selective colleges and less likely to change their minds about attending. Studies by Dahl (1982) Hearn (1984), Zemsky and Oedel (1983) and Jackson (1978) all confirm that high school academic ability is positively correlated to the choice of schools. A more recent study, however, contradicts these results. Hossler et al. (1989) found GPA not to be a good correlate of college selection.

Parental encouragement has also been linked with the choice to attend a specific college. The research of Conklin and Dailey (1981) indicates that, with increased levels of parental encouragement, students are more likely to enroll in college, attend a four year institution and go to a selective institution. Similar results were found by Keller and McKewon (1984), Weldi and Novratil (1987) and Litten et al. (1983).

Socioeconomic status, which was found to have a moderate correlation with college aspirations during the predisposition phase, appears to be closely related to the selection of a particular postsecondary institution. Five studies all indicate that students from high socioeconomic status families are more likely to apply to high status or more selective schools than those from middle and lower income level families (Hearn, 1984; Spies, 1978; Maguire and Lay, 1981; Chapman, 1979; Zemsky and Oedel, 1983). Although family income is related to students' selection of colleges, it appears to have little relation to students' concerns for the cost of attendance. Leslie et al. (1977), Tierney (1980), and Maguire and Lay (1981) found only moderate correlations between socioeconomic status and institutional cost.

The research on parental levels of education indicates that as parents' education increases, students tend to enter the choice stage earlier and are more likely to attend selective institutions. There is little evidence, however, that this factor is significantly related to the likelihood of attendance. Litten et al. (1983), studying six market regions, (Baltimore/Washington, Chicago, Dallas/Ft. Worth, Minneapolis/St. Paul, Denver/Bolder, and San Francisco/Oakland) found that levels of parental education were positively associated with the preference of high-ability students for exclusive, private colleges. In another study, Hearn (1984) also found that parental education was positively correlated to students attending more selective institutions. Two qualitative studies utilizing student interviews showed that students with college educated parents applied earlier, applied to more colleges and selected their institutions earlier than those who's parents did not attend (Lewis and Morrison, 1975, Gilmour et al. 1978).

Research has demonstrated the correlation of race and ethnicity with postsecondary educational plans to be moderate although too few studies have been conducted to reach any definitive conclusions. Hearn (1984) conducted a longitudinal study using PSAT, SAT, ACT and CIRP data and found that African American students were less likely to apply to more selective institutions. Stewart et al. (1987), in his study of Michigan State students, found that African American students were more concerned with financial aid awards than college status. Neither of these studies controlled for the effects of ability or socioeconomic status, so it is uncertain that they lend accurate information about the relationship between race and ethnic background and the choice process. Another study found college plans of White and African American high school seniors to follow similar paths (Hauser and Anderson, 1991).

Few studies also are available addressing the relationships of peer encouragement and the quality of the high school attended with college choice. In both cases, what information is available indicates that these factors have little correlation with the matriculation decisions made during the choice phase. Both Jackson (1978), in his analysis of NLS data, and Gilmour et al. (1978), in their longitudinal study of high school seniors, found that peers did not have any influence on the decision to attend a specific college. Although Falsey and Heynes (1984) conclude that students attending private high schools were more likely to attend selective colleges, they fail to control for ability, socioeconomic status and parental encouragement. Without this information, little reliance can be put on their results.

From the research discussed above, it is apparent the knowledge of the college choice process is extensive. Certainly, there is a fairly thorough understanding of the factors which are associated with an individual's desires to addend college, from which policy decisions can be made. However, the information presented so far, while depicting how the typical individual may be influenced, is deficient in exploring the relationships of the choice process for specific populations. The literature examines race and gender variables and their interplay on student aspirations, college search and college selection, but it does not examine the relationship of the other variables in the process for the different groups. For instance, during the predisposition phase, we know student academic ability, academic track, parental levels of education, parental encouragement and participation in extracurricular activities are correlates of college aspirations for the typical student, but are these factors related to the postsecondary desires of special populations, especially for minority groups and women? Recent research indicates that for African Americas, in particular, they are not.

College Choice Process for Minority Groups

The literature examining the college choice process for members of minority groups is somewhat limited, and in fact, has examined the process only for African Americans. Further, it has focused on testing the appropriateness of existing models rather than developing new theories. Researchers have yet to examine the development of aspirations and expectations for post secondary attendance amongst Hispanics, Native Americans and Asian Americans. For African Americans we know the traditional factors are not strong correlates of postsecondary aspirations, but researchers are only now beginning to investigate new descriptors for this population and others.

In the 1970's, two studies (Portes and Wilson, 1976; Kerckhoff and Campbell, 1977) reexamined the findings of the sociological models of college aspiration using African Americans and Whites as separate groups. The independent variables, socioeconomic status, academic performance, influence of significant others, ambition and educational attainment were all found to be correlated to White students' post secondary aspirations. For African Americans, however, this was not the case. The models proved to be much looser or less coherent for African Americans (Kerckhoff and Campbell, 1977).

More recently, the combined models have been reexamined as well (Bateman and Hossler, 1996). Parents' expectations were found to remain as a strong correlates of college aspirations for African Americans; and student ability was also found to be significant. For African American females, the educational level of their mothers was also positively associated with the development of post secondary plans. None the less, the total variance explained by the models remained small. For African American females a R^2 of .41 was found and for males, a R^2 of .36. When compared to variance levels of .54 and .63 for White females and males respectively, these results indicate that the models are less significant for African Americans.

The models account for less correlation between variables when family structure is considered. For African Americans males from single parent households, parental factors, including parental income and education and to a certain extent, parental expectations, were less significant in the development of college aspirations (Bateman and Kennedy, 1997). Not surprisingly, young men living in households headed by

females were found to be influenced by the expectations of the mother but not the father. In fact, school grades were more significantly correlated to college aspirations than parental factors.

It is necessary then, to look elsewhere for information regarding behavior patterns for minority groups. The current college choice models have been shown to be lacking in providing an understanding of the process for African Americans and no information is available for other groups. New models must be developed, taking into account new variables if we are to better understand the process for these groups.

The traditional college choice literature reviewed to this point has dealt with models of choice based upon sociological and/or economic variables. An examination of the possible contribution of theory-based, psychological factors to the process has not occurred prior to this study. Therefore, an examination of the literature surrounding human behavior theory is presented with implications which suggest a relationship between the locus of control and academic self-efficacy constructs and college aspirations and expectations.

Psychological Factors

As indicated in Chapter 1, self-efficacy and locus of control were examined in this study for their significance to the college aspirations and expectations of adolescents, particularly for minority groups. At this point it is necessary to review the most significant literature surrounding these constructs.

Self-Efficacy

Human behavior theory has received significant attention in recent years, with new models being developed to explain the interaction between behavior, the

environment and cognition. Lewin's (1947) force-field theory provides the initial theoretical framework from which later discussions of the interaction between these constructs developed. According to Lewin, B=f (P, E), where an individuals behavior (B) is a function of personal variables (P) and environmental variables (E). Later theorists expand on this model by positing an interaction between personal and environmental variables where B=f (P*E) (Bowers, 1973; Endler and Magnusson, 1975). Bandura's (1978) theory of reciprocal determinism adds further maturity to the model. According to Bandura, an individual's behavior is not simply the product of environmental experiences or one's interpretation of these experiences, but a result of the reciprocal interaction of cognitive, behavioral and environmental factors. Reciprocal determinism posits the three constructs as forming an interlocking system with each factor influencing the other two. The environment and our cognitive perceptions of the environment interact with each other to effect our behavior. Behavior, however, is not simply exogenous, but also an interactive variable in the process. Our behavior effects both the environment and our cognitive process in a circular model of causation. (Bandura, 1997).

Self-efficacy is an important part of the cognitive aspect of reciprocal determinism. In explaining the potency of self-efficacy beliefs Bandura (1997) states:

> such beliefs influence the courses of action people choose to pursue, how much effort they put forth in given endeavors, how long they will persevere in the face of obstacles and failures, their resilience to adversity, whether their thought patterns are self-hindering or self-aiding, how much stress and depression they experience in coping with taxing environmental demands, and the level of accomplishments they realize. (p.3)

Components of Self-Efficacy

There are two aspects of self-efficacy which are the focus of this review: efficacy beliefs about personal capabilities to effect specific outcomes and persistence and motivation in pursuing performance outcomes. Although these two aspects are somewhat interrelated, they are addressed as separate items. According to Bandura (1977), perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given alternatives. Persistence relative to self-efficacy beliefs involves the length of time individuals will persist in performing specific behaviors in the face of obstacles and adverse experiences. When beset with difficulties individuals who seriously doubt their capabilities tend to slacken their efforts or give up entirely, but those who possess strong feelings of efficacy tend to exert a greater effort to succeed (Bandura, and Schunk, 1981). The stronger one's perceived efficacy, the more likely an individual is to persist in one's efforts until mastering the challenges with which one is faced (Bandura, 1982).

Self-efficacy beliefs and persistence determine the course of action one chooses. Perceptions of low self-efficacy are likely to lead to the avoidance of specific tasks, whereas high self-efficacy perceptions are likely to lead to more frequent undertakings of a task (Bandura, 1977). By undertaking activities and selecting situations we judge are within our capabilities to successfully handle and avoiding those where we expect failure, our life plans are impacted by our self-efficacy (Bandura, 1993). Thus, in terms of aspirations and, more importantly, expectations of college attendance, an individual's belief in one's ability to perform will greatly shape his or her decision to pursue a postsecondary education.

Determinants of Self-Efficacy

Self efficacy is enhanced or reduced by four principle sources of stimuli: enactive mastery experiences, vicarious experiences, verbal persuasion and physiological and affective states (Bandura, 1997). Performance accomplishments are based on personal mastery experiences. When an individual experiences success in performing a task, expectations of future success increases, and hence the development of greater self-efficacy. Conversely, repeated failures reduce expectations of success and decrease self-efficacy. Once strong efficacy expectations are developed through repeated success, however, the negative effects of occasional failures are reduced. Further, if the occasional failures are overcome by persistent efforts, self-efficacy is increased to an even greater extent (Bandura, 1997).

Vicarious experience occurs when an individual observes someone else successfully perform a task. Seeing another achieve, can generate expectations in the observer that one's own efforts and persistence will also result in the successful completion of the task. This stimulus is dependent on inferences of social comparison and is less dependable in its influence on self-efficacy than direct personal accomplishments. Efficacy appraisals are partly influenced by vicarious experiences mediated through modeled attainments. Efficacy expectations induced by modeling alone are usually weaker and more vulnerable to change (Bandura, 1997).

Through verbal persuasion, individuals are led to believe by suggestion, that they can successfully perform a given task. Although when taken alone, this stimulus to the enhancement of self-efficacy beliefs has definite limitations. When used in

conjunction with performance accomplishments or vicarious experiences, however, it can result in even greater effort and persistence by the individual. Social evaluation, in the form of performance feedback, for example, combines one's own experiences with verbal persuasion to have a significant impact on efficacy (Bandura, 1977). According to Bandura (1997), "People who are persuaded verbally that they possess the capabilities to master given tasks are likely to mobilize greater effort and sustain it than if they harbor self doubts and dwell on personal deficiencies when difficulties arise." (p.101)

Bandura (1997) explains that people rely partly on somatic information derived from physiological and emotional states in judging their capabilities. Thus, behavioral outcomes associated with positive somatic states enhance self-efficacy strength. Emotional arousal can also be detrimental to performance accomplishments as well as to the development of self-efficacy. When faced with stressful or taxing situations, one's anxiety increases, which in turn can be debilitating to the successful completion of a task. Individuals are more likely to expect success when not forced to cope with aversive arousal in attempting to perform a given task. Perceived efficacy to exercise control over anxiety can mitigate the effects of emotional arousal and increase the likelihood of performance achievement (Bandura, 1977).

Self-Efficacy and College Choice

In examining the factors which have been found to be associated with college choice - parental encouragement, parental education levels, academic achievement, academic track and participation in extracurricular activities - the potential significance

of self-efficacy to the process emerges. High school achievement, academic track and participation in extracurricular activities all involve enactive mastery experiences which affect a student's perception of one's ability to succeed in an academic setting. Parental educational levels model for the student the accomplishments of family members which serve as a vicarious experience. Parental encouragement frequently is manifested in the form of verbal persuasion. Thus, the most significant factors related to a student's decision to pursue a college education are also likely to be closely associated with stimuli with impact a student's self-efficacy.

This theoretical connection between efficacy and college choice has some empirical support. Betz and Hackett (1981), in a study of the role of self-efficacy in the career decision process, found that self-efficacy expectations were related to both the type and number of occupations young adults considered. Further, individuals who were less confident in their ability to complete the tasks and behaviors needed to make effective career decisions were more likely to experience difficulties in making career decisions (Taylor and Betz, 1983). If college attendance is considered a career decision, then this research gives strong support to the argument that self-efficacy is related to the college choice process. Indeed, as previously indicated, a high school graduate's occupational preferences have a significant relationship with the decision to pursue a postsecondary education (Manski and Wise, 1983; Dahl, 1982; Hilton, 1982; Peters, 1977; Trent and Medsker, 1967).

Self-Efficacy Generalization

The literature surrounding the generalization of efficacy beliefs is extremely sparse, as this is an area of new concern for researchers. However, some preliminary

information is available. Bandura (1997) has identified five processes through which mastery experiences can produce some degree of generalized self-efficacy. These occur when similar sub-skills are present, when competencies co-develop, when self-regulatory or coping skills are involved, when commonalities are cognitively structured across domains and when powerful performance attainments result in transforming experiences.

When different tasks share similar sub-skills for their completion, it can be expected that individuals will judge their capabilities to successfully accomplish the tasks in a like manner. For example, one would expect an athlete who possesses extraordinary physical abilities to have high levels of efficacy towards a variety of sports. Although different sports require some skills which are different, there is enough commonality in athletic endeavors that individuals with natural athletic talent would be expected to have higher expectations for success than those not possessing such talent.

Even when the sub-skills for tasks are different, the perceived efficacy of an individual in developing competencies is affected when the skills are acquired at the same time. In other words, when learning for different activities happens simultaneously, the efficacy one develops tends to reflect on all the activities learned. For example, in the school setting when both language and mathematics are taught with equal competency within a relatively short time period of each other, the efficacy students have for learning both subjects is generally related. Empirically, there is evidence demonstrating this notion of co-development as well as the concept of common sub-skills (Ewart et al., 1986).

The possession of both self-regulatory skills and coping skills can also permit individuals to improve their expected performances across a variety of activities. When one can diagnose task demands, construct and evaluate alternative courses of action, set proximal goals to guide efforts, create self-incentives to continue persistence in challenging activities, and manage stress and debilitating thoughts, an individual is much more likely to have greater efficacious beliefs across domains. Likewise, when individuals have a heightened ability to cope, can exercise control over diverse threats, they are more likely to have greater degrees of generalized efficacy (Bandura, 1997).

Self-efficacy also tends to generalize across domains when commonalities are cognitively structured across activities. If an individual realizes that increased effort and persistence results in greater success in one area, one is likely to expect similar effort and persistence in other areas to cause similar outcomes. This is particularly salient in academic areas. Success achieved through effort and persistence in one subject will tend to lead to the belief that effort and persistence in another subject will yield the same type of results.

Finally, Bandura (1997) indicates that transforming experiences that come as the result of significant performance attainments can serve to strengthen beliefs in our abilities to achieve success in diverse areas even when these areas are unrelated. Transforming experiences often come in the form of personal triumphs leading one to believe in one's ability to mobilize the effort needed to succeed in different undertakings. These triumphs tend to leave an individual with a top of the world feeling, having the efficacy to surmount almost any obstacle and best almost any challenge.

The self-efficacy literature reviewed above focuses on variables and concerns most pertinent to this study. An extensive documentation of the theoretical basis of self-efficacy and an extensive review of empirical support for the viability of the self-efficacy construct in human agency in multiple contexts can be found in Bandura (1997).

Locus of Control

Locus of control refers to the extent to which we believe we are in control of the events which shape our lives. According to Julian Rotter (1966), locus of control is "the degree to which the individual perceives that the reward [of an event or activity] follows from, or is contingent upon, his own behavior or attributes versus the degree to which he feels the reward is controlled by forces outside of himself and may occur independently of his own actions." (p. 1) An individual is termed to be internal if the individual perceives that events are contingent on one's own behavior or relatively permanent characteristics. An individual is termed to be external if the individual perceives that events are the result of luck, chance, fate or the work of powerful others.

Social learning theory provides the conceptual background to the locus of control construct (Rotter, 1966). According to this theory, reinforcements act to strengthen an expectancy that a particular behavior or event will be followed by the same reinforcement in the future. If the reinforcement does not occur with subsequent enactments of the behavior or event, then the expectancy is reduced or extinguished. During our early development, we acquire experiences that differentiate events which are causally related to preceding events and those which are not. When we perceive that

the reinforcement is not contingent upon our own behavior, our expectancy for the reinforcement to again occur is less than when we perceive it to be contingent. Further, when the reinforcement fails to reoccur, our expectancy is reduced to a greater extent than when we perceive it to be contingent upon our behavior (Rotter, 1966).

According to Rotter's theory, an individual's actions can be predicted on the basis of one's values, expectations and the circumstances of the situation. His social learning theory is summarized in the following formula: NP = f(FM & NV). Need potential (NP) or the potential for the occurrence of a set of behaviors that lead to the satisfaction of a need is a function of the expectancy that these behaviors will lead to reinforcement (Freedom of Movement: FM) and the strength or value of these reinforcements (Need Value: NV). It is through freedom of movement that the construct, locus of control, becomes a factor in Rotter's theory (Rotter, 1954).

Rotter conceptualizes freedom of movement as:

> the mean expectancy of obtaining positive satisfactions as a result of a set of related behaviors directed toward the accomplishment of a group of functionally related reinforcements. A person's freedom of movement is low if he has a high expectancy of failure or punishment as a result of the behaviors with which he tries to obtain the reinforcements that constitute a particular need. (p. 194)

Freedom of movement, then, is a generalized expectancy of success resulting from an individual's ability to remember and reflect upon previous expectancy-behavior-outcome sequences (Lefcourt, 1982). Success and failure experiences however, do not affect the expectancy-behavior-outcome sequence alone, but rather an individual's interpretation of the causes of these experiences is equally important. The degree to which an individual attributes the outcome of an experience as being the result of one's

own actions or caused by external forces effects the strength of one's expectancy for repeated experiences of a similar nature and, hence, one's behavior. No matter what experiences one has, unless they are perceived as the results of one's own actions, they will not be effective in altering the ways in which one sees things and consequently the way one functions. Experiences attributed to external forces will be viewed as beyond the control of the individual, and therefore unlikely to reoccur regardless of the individual's efforts. Consequently, the individual is unlikely to expend any amount of significant effort toward the recurrence of the experience.

Locus of Control and Human Behavior Studies

Extensive empirical evidence for the linkage between locus of control and human behavior has been generated over the past forty years. In experiments involving individuals attempting to complete routine tasks while subjected to loud distracting noises, researchers found when the participants could anticipate the noises and thus prepare for the distractions, they were far more successful in completing the assigned tasks (Glass, Reim and Singer, 1971; Glass and Singer, 1972; Glass, Singer and Friedman, 1969; Reim, Glass and Singer, 1971). By having the ability to anticipate the distractions and preparing for the intrusions, individuals demonstrated a higher level of perceived personal control over the situation. Similar studies have been able to replicate these findings (Blechman and Dannimiller, 1976; Sherrod, 1974; Sherrod and Cohen, 1978). Experiments using shock to individuals as a negative stimulus, demonstrated that uncontrolled shock has more deleterious effects upon complex learning task performances than controllable shock (Golin, 1974). In studies of social situations,

greater perceived control resulted in more positive interactions. Senior citizens in nursing homes, who were allowed to determine the time of visits by volunteers were found to be more active than those who could not control visitation hours (Schulz, 1976). Students living in residence halls with predictable, controllable traffic patterns expressed a more positive attitude toward their college experiences than those who lived in situations where traffic patterns were sporadic and uncontrollable (Baum, Aiello and Calesnick, 1978).

Locus of Control and Adolescent Academic Achievement

Several decades of research has demonstrated that locus of control and academic achievement among adolescents are closely linked. The perceptions students maintain about the amount of control they have over academic successes and failures contribute significantly to their subsequent school performance (Skinner, Wellborn and Connell, 1990). Students who display initiative, intrinsic motivation and personal responsibility tend to achieve greater academic achievement than those who attribute achievement to factors beyond their personal control (Zimmerman, 1990). Thus, an internally-oriented locus of control has been found to more likely to result in success in school than an externally-oriented locus of control (Clarke-Stewart and Friedman, 1983; Seligman, 1975, Skinner, Wellborn, and Connell, 1990). Adolescents who think they are personally responsible for their successes have been found to spend more time doing homework, try longer to solve complex problems and get higher grades than students who think events are beyond their personal control (Crandall, Katkovsky, and Crandall, 1965; Franklin, 1963; McGhee and Crandall, 1968). In fact, one study found school

achievement to correlate more highly with locus of control than with measures of intelligence (Nowiski and Strickland, 1973).

Locus of control as a factor of academic success has been examined in a variety of educational settings. Students with stronger beliefs in fate or chance determining outcomes have been found to be less motivated to achieve success than students with stronger beliefs in internal controls in both cooperative and competitive learning settings (Lester, 1992). Students with an external locus of control have also been found to set less difficult goals for themselves when given the opportunity (Benham, 1995). Adolescents tend to subconsciously create impediments to their own performance or self-handicap themselves when academic performance is attributed to external factors (Murray, 1992).

Measures of Locus of Control

Early efforts at developing measures of individual differences in a generalized belief in internal and external sources of psychological control were undertaken by Phares (1957) and James (1957). In his study of chance and skill effects on expectancies for reinforcement, Phares developed a Likert-type scale with 26 items, half stated to reflect external attitudes and half stated to reflect internal attitudes. James employed a similar approach using 26 items evenly divided between external and internal orientations, but added filler items to mask the intentions of the test. The work of Phares and James was followed by Rotter (1966) who undertook the construction of a 100 item, forced choice scale which developed specific subscales to measure areas such as achievement, affection and general social and political attitudes. This scale was then

item analyzed and factor analyzed and reduced to a 60 item scale based on internal consistency criteria. By correlating the subscales of the 60 item scale with the Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe, 1964) and conducting tests for item validity, the scale was reduced to 23 items. By adding seven filler items, also to mask the intent of the measure, the final version of the Internal-External Locus of Control Scale was developed.

Although the I-E Scale was designed to incorporate specific subscales, Rotter reports that factor analyses "indicate that much of the variance was included in a general factor" (Rotter, 1966, p.16). In his study of Ohio State undergraduate students he finds only a small degree of variance attributed to factor subscales. Similar results were ascertained by Franklin (1963) in his study of 1000 high school students. Here moderate loadings were found for the subscales but 53% of the total scale variance was attributed to the general factor. Subsequent studies have determined quite different results with the factor analysis of the Internal-External Locus of Control Scale. Typically when two or more factors are identified they correspond to the following constructs: general luck, control ideology, political control, success via personal initiative, interpersonal control, control in an academic situation, and control in an occupational setting (Marsh and Richards, 1984). Mirels (1970) found general control and political control to be evident in a two-factor solution, and most other studies also identify these sub-scales. In addition to these two factors, Gurin et al. (1969) and Sanger and Alker (1972) also identified a personal control factor in their studies. Abrahamson et al. (1973), on the other hand, report an interpersonal or social factor as a

third factor along with general control and political control in a three-factor solution. When more than three factor emerge, an academic control factor is often identified (Garza and Widlak, 1977; Little, 1977; Watson, 1981; and O'Brian and Kabanoff, 1981), or an occupational factor (Gurin et al., 1978). Another approach to factor analyzing Rotter's Scale has been to convert the scale to a 46 Likert-type scale. In studies utilizing this approach multiple factors have been identified. Zuckerman and Gerbasi (1977) report the extraction of four factors in their study and Collins (1974) describes four separate components to the scale, the belief in a difficult world, a just world, a predictable world and a politically responsive world.

Summarizing the numerous factor analyses of the I-E Scale, Marsh and Richards (1984) note that in most studies the loadings found are small, some items do not load substantially on any factor and some items load on more than one factor.

Chapter Summary

This chapter provides a review of literature pertinent to understanding college choice and college choice models, with a particular concern for minority students and psychological constructs which have previously been excluded from consideration into the models.

CHAPTER 3: METHODOLOGY AND PROCEDURES

Chapter 3 provides a description of the methodology for the study. Included is a description of the research design, the study measures and data collection, processing and analysis procedures.

Research Design

The research design employed post hoc correlation techniques to frame the data collection and analysis procedures used in this study. The relationships among the variables were explored in an attempt to develop a structural model examining linkages between the constructs. As discussed in Chapter 1, self-efficacy and locus of control, along with the traditional variables, were conceptualized as independent variables and college aspirations and expectations were conceptualized as dependent variables. Self-efficacy and locus of control were also thought to act as mediating variables in linking the traditional variables to the dependent variables.

Target Population for the Study

The target population for the study was selected from ninth-grade students attending public school in Miami-Dade County Public Schools (M-DCPS). The M-DCPS District was chosen because it is one of the nation's largest school systems, has a great deal of diversity in its student population and has a reputation for being receptive to education research. Three schools within the district were selected for the study, which, when combined, provide a racially diverse sample population. The three schools were also selected because all demonstrated a receptivity to the study among their faculty and administration. School one had a total population of 3100 students with

55% White, 18% African American and 23% Hispanic. The ninth-grade class at school one had an enrollment of 959 students, with 50% White, 22% African American and 23 % Hispanic. School two had a total population of 3031 students with 19% White, 53% African American and 25% Hispanic. The ninth-grade class at school two was comprised of 750 students, 10% White, 62% African American and 24% Hispanic. School three had a total population of 4204 students with 4% White, 6% African American and 88% Hispanic. The ninth-grade class at school three was comprised of 1513 students, 5% White, 4% and 91% Hispanic. Taken together, the three schools provided a target population of 3222 ninth-grade students. Of these, 19.5% were White, 24.5% were African American and 54.7% were Hispanic (Miami-Dade County Public Schools, 1998). Figure 3.1 provides the profile of the population by school and race. The questionnaire was administered to ninth-grade students at the three schools in language arts class.

Ninth-grade students were selected for the study since, at this stage of a student's development, postsecondary plans have been, or are being, developed. In an extensive review of the college choice literature, Hossler et al.(1989) report that most high school students have already made their decisions about going to college by the freshman or sophomore years. Further, plans made by students during the ninth-grade have been found to be relatively stable throughout a student's high school career (Schmit and Hossler, 1995).

Table 3.1

Profile of Population by School and Race

Race	School 1 Frequency	School 1 Percent	School 2 Frequency	School 2 Percent	School 3 Frequency	School 3 Percent
	All Grades					
African American	549	18	1595	53	247	6
Asian American	136	4	115	4	55	1
Hispanic	699	23	745	25	3720	88
Native American	7	0	3	0	0	0
White	1692	55	569	19	182	4
Other	17	1	4	0	0	0
Total	3100	100	3031	100	4204	100

Race	School 1 Frequency	School 1 Percent	School 2 Frequency	School 2 Percent	School 3 Frequency	School 3 Percent
	9th Grade					
African American	207	22	464	62	58	4
Asian American	42	4	27	4	15	1
Hispanic	218	23	177	24	1370	19
Native American	2	0	3	0	0	0
White	482	50	77	10	70	5
Other	8	1	2	0	0	0
Total	959	100	750	100	1513	100

Note: Due to rounding percentages may not total to 100.

Instrumentation and Measures

A student questionnaire containing three instruments, all adaptations of existing measures, was used for data collection (See Appendix A for a copy of the instruments). To provide data about the five traditional factors related to college aspirations and expectations - parental encouragement, parental education level, student's academic achievement, high school track and participation in extracurricular activities - questions taken from the National Education Longitudinal Study of 1988 (U.S. Department of Education, Office of Educational Research and Improvement, 1992) were used. Self-efficacy data were collected by using an adapted version of the academic section of Bandura's (1989) Children's Self-Efficacy Scale. The instrument was adapted by the addition of five questions, two designed to measure generalized self-efficacy and three others to provide further insight into persistence as a component of academic self-efficacy. Locus of control data was collected using Rotter's (1966) Internal-External Locus of Control Scale. In addition to these instruments, college aspirations and expectations were ascertained by asking two questions, one directed at each concept. Students were also asked to respond to demographic questions to delineate race, gender, age and socioeconomic status. Socioeconomic status was determined by asking students whether or not they participated in the district's free or reduced lunch program.

Pilot Testing

Prior to administering the questionnaire to the target population, a pilot test was conducted with a class of ninth-grade students attending a public high school in a rural Louisiana community. The pilot test was designed to examine the readability of the

questionnaire, the length of time needed for its completion and to identify any general problems which students might encounter in answering the questions. The test was administered by a teacher to her algebra class comprised of 20 regular track students, 10 of whom were White, 8 African American and 2 Asian American (Vietnamese). The time that it took the students to complete the questionnaire was recorded by the teacher, and the following questions were asked of the class and discussed in an open forum: a) What difficulties did you have in completing the questionnaire? b) Were the verbal instructions for completing the questionnaire adequate and easy to understand? c) Were the written directions adequate and easy to understand? d) Did you have any difficulties with any particular section of the questionnaire? e) Did you have any difficulties with any particular question on the questionnaire? and f) Do you have any recommendations on how the questionnaire can be improved?

Generally, the students who participated in the pilot test of the questionnaire were able to answer the questions on the instrument without significant difficulty. The instruments required between 15 and 19 minutes for the students to complete, and no substantive problems were encountered. Only a few modifications were necessary to make the instrument more readable and easier to understand. For example, the instructions for answering questions 17-45 were shortened and simplified to provide more clarity, and further elaboration was added to question 50. With these modifications, the final instrument was developed and administered to the study's target population.

Internal-External Locus of Control Scale

The Internal-External Locus of Control Scale was designed to ascertain the subjects' belief about the nature of the world particularly with expectations about how reinforcements are controlled. It is a measure of generalized expectancy, addressing the value the subject places on internal control but does not directly address the preferences for internal or external control (Rotter, 1966).

Structure/Scoring

The Scale followed earlier efforts by Phares (1957) and James (1957) to develop measures of generalized expectancy or belief in external control as a psychological variable. Initially a questionnaire with a hundred forced-choice items, Rotter's measure was factor analyzed and reduced to a 60 item scale and then reduced further to 23 items after correlation with the Marlowe-Crowne Social Desirability Scale (Crowne and Marlowe, 1964). The final version of the scale is a 29 item, forced-choice test which includes 6 filler items for the purpose of making the test less susceptible to response set. For each item, subjects are instructed to choose between two statements, indicating which one most closely corresponds with their beliefs. One statement corresponds to an internal orientation, and the other corresponds to an external orientation.

The Scale is scored in the direction of external control; the higher the score, the greater the external orientation of the individual. For each choice of a statement which indicates an external orientation one point is given, but no points are given for the choice of an internally oriented statement. Thus, the individual who chooses a greater number of external statements than internal statements will have a higher score on the scale.

Validity

The validity of Rotter's scale was ascertained by Rotter both by studying predicted differences in behavior of individuals above and below the median of the scale and from correlations with other locus of control measures. The scale has been administered to numerous groups including Peace Corps trainees (Rotter, 1966), African American inmates (Lefcourt and Ladwig, 1965) and high school seniors (Franklin, 1963). Given these different populations certain pre-testing assumptions are possible about expected outcomes based on the conceptualization of the construct, locus of control. One would expect Peace Corps trainees to exhibit a much greater internal frame of reference than African American inmates. Individuals would not volunteer for the Peace Corps unless they have a relatively high expectation that their efforts overseas would have a positive impact on the lives of the people with whom they work. In other words, they have a great deal of confidence that they control the outcomes of their efforts. Conversely, inmates are incarcerated into a prison system which is nearly in total control of every aspect of their lives and very few actions they undertake impact the outcomes they experience. It would be expected that prisoners would have relatively high external frames of reference. The frame of reference for high school seniors, in all likelihood, would be spread across the range from highly internal to highly external based on the life experiences of the individuals.

In the studies involving these groups, the conceptual assumptions as to their levels of internal or external orientation were confirmed. The mean score for Peace Corps trainees on the Scale was 5.94 (Rotter, 1966) while African American inmates

recorded a much higher mean score of 8.97 (Lefcourt and Ladwig, 1965). When the Scale was given to high school seniors, a mean score of 8.5 was derived; but those students who intended to go on to college were found to be significantly more internal than those who did not intend to extend their education beyond high school (Franklin, 1963). Since the higher one scores on the scale the greater the belief in external control, the findings of these studies do validate the conceptualization of the construct.

The validity of the scale was also ascertained by comparisons with a number of other locus of control instruments. The early 60 item version of the Scale was compared with the James-Phares measure producing correlations between .55 and .60 (Blackman, 1962; Johnson, 1961). The final version of Rotter's scale was found to have a biserial correlation of .61 when compared to a measure of internal-external control used in a study of academic failure (Cardi, 1962).

Reliability

The reliability of the Internal-External Locus of Control Scale was tested for both internal consistency, using Kuder-Richardson and Spearman-Brown split half reliabilities, and test-test reliabilities. In a study of Ohio State University elementary psychology students, an r value of .73 was calculated for both the Spearman-Brown and the Kuder-Richardson tests for the Scale (Rotter, 1966). Franklin (1963) derived a r value of .69 when applying the Kuder-Richardson test to his data collected from high school seniors.

When analyzing test-retest information from his data collected from Ohio State students, Rotter (1966) derived an r value of .72 with a retest after one month and an r

value of .55 with a two month retest. In an administering of the Scale to prisoners in a Colorado reformatory, a r value of .78 was calculated for a one month test-retest of the measure Rotter (1966).

Children's Self-Efficacy Scale

Bandura's Children's Self-Efficacy Scale was developed as an applied application of the theoretical self-efficacy construct. It is designed to measure nine different aspects of a child's perceived ability to successfully perform specific tasks: a) enlisting social resources, b) achieving academically, c) self-regulating learning, d) applying leisure time skills and participating in extracurricular activities, e) general self-regulation, f) meeting others' expectations, g) functioning socially, h) self-assertiveness and i) enlisting parental and community support. For the purposes of this study only the academic achievement section of the Scale was used.

Structure/Scoring

The academic achievement section of the scale is comprised of nine questions relating to various academic disciplines. Respondents are asked to select, using a four point Likert type scale, how well they can learn in the disciplines. They must choose whether they can learn not well at all, not too well, pretty well, or very well. The measure is scored one through four with one indicating a response of not well at all and four indicating a response of very well.

Validity

No information is available regarding the validity of the academic achievement section of the Children's Self-efficacy Scale by itself, although the entire instrument has

been tested. Williams and Coombs (1996) found divergent and construct validity results which indicate that the general theoretical framework, and the scales designed to assess it, were valid. In a study of 500 junior and senior students attending public high schools, they examined correlations coefficients between the nine subscale pairs and found fairly low rates of measurement overlap with a range of 2% to 31% of shared variance. They also factor analyzed all 57 items on the Scale, identifying eight factors with eigenvalues greater than one and approximately 89% of the total variance accounted for by the eight-factor solution.

Reliability

The Williams and Coombs' (1996) study also examined the reliability of the scale which yielded a Cronbach Alpha reliability coefficient of .92 for the entire measure. For academic self-efficacy, the Cronbach Alpha coefficient was .74.

Additional Questions

In addition to the nine measures of academic self-efficacy five additional questions, developed by this researcher, were added to the student questionnaire, two to derive data regarding the generalizability of the self-efficacy construct and three to provide further insight into students' persistence in the school environment. These final three questions were added due to a lack of attention to the concept of persistence with the initial nine questions. As Bandura indicates, one of the key consequences of self-efficacy is how long an individual will persist in the face of obstacles and aversive experiences (1978). No measure of persistence is included in the Children's Self-Efficacy Scale. Questions 14, 15, and 16 on the student questionnaire were added for this purpose.

National Education Longitudinal Study of 1988

The National Education Longitudinal Study of 1988 was a major study conducted by the National Center for Educational Statistics using longitudinal information about the achievement and characteristics of elementary and secondary school students. NELS:88 began with a base year survey in 1988 of 26,200 eighth-grade students from 800 public and 200 private schools, followed up at 2-year intervals in 1990, 1992, and 1994. Selected questions from the study were used in this study to ascertain information from the target population about the traditional factors which have been identified with the college choice process. Questions 46, 50, 51, 52 and 53 were all taken from the NELS:88.

Validity

Little validity information is available for the NELS:88 study, and what is available does not fully address the all items on the instrument. Nonetheless, the validity of the some of the measures used in this study has received the attention of researchers. Kaufman and Rasinski (1991) provide information about the quality of data collected for parents' education levels and parental expectations by comparing the students' responses with those of parents in matched pairs. This test of concurrent validity resulted in a correlation between responses of .82 with father's education level, .76 with mother's education level, .41 with father's expectations and .43 with mother's expectations. Another similar study, including data from the follow-up studies in 1990, 1992 and 1994 with the base year information, found the correlation for father's education level to be .88, mother's education to be .84, father's expectations to be .51 and mother's expectations to be .50 (McLaughlin, 1997).

The data for participation in extracurricular activities was also analyzed for concurrent validity. By comparing student responses about the activities in which they were involved with responses from school administrators about extracurricular offerings, some validation of student data was obtained. The following correlations were found between student and administrator responses for the following activities: Math Club: .53, Science Club: .75, Drama Club .64, Computer Club: .63 and Academic Honors Club: .69 (Kaufman and Rasinski, 1991)

Reliability

The information available about the reliability of the NELS:88 is even more sparse than the validity information. McLaughlin (1997) analyzed the degree to which the data were free of measurement errors for parental expectations and for participation in extracurricular activities by comparing information provided in the 1988 base study with information from the first follow-up study in 1990. This analysis resulted in a correlation coefficient of .47 for father's expectations and .43 for mother's expectations. When the two data sets were compared for participation in extracurricular activities the following correlation coefficients were derived: Intramural Sports, .25; Interscholastic Sports, .46; Cheerleading, .53; Drama Club, .27; Student Government, 34; Honors Clubs, .42; and Career Clubs, .14.

Data Collection Procedures

Packaging and Distribution Procedures

Data for the study were collected with the assistance of Miami-Dade County Public Schools personnel. After receiving permission from the district's central office

to proceed with the study, the principal at one of the sites selected for data collection was contacted to assist with the administering of the questionnaire. After instructing the principal in the process, he then became the lead individual in collecting the data from all three schools. The principal arranged for the administering of the questionnaire at the other two schools and instructed the principals at these sites on the methods for data collection.

The questionnaires were packaged into packets of thirty with a cover letter instructing teachers about administering the instrument to their students (see Appendix A for a copy of the cover letter). The principal at each school distributed the packets to teachers who administered the instrument in their language arts classes. The completed questionnaires were returned to the principals via the packets and then returned to the principal at the first school for shipment back to the researcher.

Of primary consideration during the data collection process was the protection of the anonymity of the participants. At no time was the identity of the individual respondent, teacher or class attached to any questionnaire; and the packets were separated only by school, so that interscholastic comparisons could be made. Participation in the study was voluntary and, prior to inclusion, all students were given a release form (see Appendix A) to be taken home for parental or guarding approval.

Data Collection Time Lines

The packets containing the questionnaires were sent to the lead principal during the early part of January, 1999, and administered at each of the three schools during the months of February and March. All questionnaires were completed and returned to the

researcher by April 10, 1999, and delivered to the Measurement and Evaluation Center at Louisiana State University on April 12, 1999, to be scanned.

Data Analyses

After the completion of data collection procedures and the construction of various data files, a variety of analyses was completed to examine characteristics of the sample, the various measures used and to test the formal hypotheses and questions posed. These analyses were: a) descriptive statistical analyses of all demographic and instrument items as well as composite variables; b) factor analyses of the sections used to measure locus of control and self-efficacy; c) Cronbach Alpha internal consistency reliability analyses of subscales and/or total scores; d) bivariate correlations among all instrument subscales and instrument totals; e) multiple regression analyses to examine the relative contribution and combination of variables explaining variance in college expectations and aspirations; and f) partial correlations between study variables while controlling for the effects of locus of control and academic self-efficacy to explore linkages between the traditional variables, locus of control and self-efficacy, and college aspirations and college expectations.

Descriptive Statistics

For all demographic variables and for the dependent and independent variables summary statistics were completed including means, standard deviations, ranges of scores, and means expressed as percentages of the maximum possible scores for each factored subscale of the independent measures. These statistics were complied and reported for the total sample and by school.

Factor Analyses

The data compiled from the self-efficacy and locus of control measures used in this study was subjected to a series of factor analysis procedures to test the dimensionality of the underlying constructs. For both measures, an unconstrained principal component solution was completed followed by analyses which iteratively extracted from one to multiple factors. Since identifying a set of independent factors was desired, orthogonal rotations were utilized. These analyses were completed for the entire sample and for sub-samples divided by race, gender and socioeconomic status. Factor to factor and item to factor intercorrelations were also completed with students used as the units of analysis.

Three general decision rules were established and utilized for all the measures in interpreting the results of these factor analyses and in selecting the solutions which represented the best conceptual and statistical interpretation of the data. First, the minimum loading for considering an item to be retained on a factor was $r = .33$. Second, the item was retained on only one factor. Third, for items with loadings of $r = .33$ or greater on more than one factor, the item was retained on a single factor if the difference between the squared loadings (r^2) was 10% or greater.

Reliability Analyses

In order to examine the internal consistency reliability of the locus of control and self-efficacy measures, the Cronbach Alpha (1957) reliability procedure was utilized. For the analysis of locus of control, total instrument scores were used as well as factored subscales. With academic self-efficacy, each factored subscale was

examined for reliability. Alpha reliability statistics were also computed for each of these measures, by racial subgroups (African American, Hispanic and White).

Correlation Analyses

A series of bivariate and multivariate correlation analyses was completed to examine relationships between the various independent variables and factored subscales, and the dependent variables. In addition to the five traditional variables, locus of control and academic self-efficacy were treated as independent variables. For locus of control, two variables were utilized, all 23 items as a single combined measure, and the subscale Academic Control identified by a four-factor, factor analyzed solution of the scale (see Chapter 4 for elaboration). All four subscales identified in the four-factor solution for academic self-efficacy were utilized, as well as three factors from a factor analyzed solution of only Bandura's (1989) items in the scale. Pearson product moment correlations were computed among the independent and dependent variables.

Regression Analyses

In order to provide additional information regarding relationships between locus of control, self-efficacy, the traditional variables and college aspirations and expectations, a series of multiple regression analyses was computed. For these analyses, the dependent variables (college aspirations and college expectations) were regressed on the traditional variables and the locus of control and self-efficacy variables.

Partial Correlation Analyses

To examine whether the constructs, academic self-efficacy and locus of control serve as mediating variables between the five traditional factors of college choice and

college aspirations and expectations, a series of partial correlation analyses was computed. For these analyses, each traditional variable was correlated with each dependent variable while statistically controlling separately for the effects of academic self-efficacy and locus of control.

Supplemental Data Set

The computation of reliability statistics for the data set collected from M-DCPS resulted in rather low coefficients which raised concern about the reliability of the data. In order to address possible causes for the low reliability coefficients, an additional data set was collected for comparison purposes. As a result, the Student Questionnaire was administered to a hold out sample of ninth-grade students attending a public high school in south-central Louisiana. Rather than relying on teachers to administer the questionnaire, this researcher personally conducted the collection of data and answered any questions that arose from the participants. This sample consisted of 131 students, 38 African Americans (29%), 1 Hispanic (.08%), 2 Native Americans (1.6%) and 86 Whites (65.6%).

The data pertaining to the measures of locus of control and academic self-efficacy for the hold out sample were factor analyzed and the factors providing the best statistical and conceptual interpretation of the data were subjected to Cronbach Alpha internal consistency reliability analysis. Also, the factors selected as representative measures of locus of control and academic self-efficacy were correlated with the other study variables.

In addition to collecting the additional data, four students, an African American male, an African American female, a White male and a White female were interviewed to determine if any difficulties were encountered in completing the questionnaire. The following questions were asked of each student: a) Was the questionnaire difficult to complete and, if so, why? b) Were there any sections of the questionnaire that you had trouble completing and, if so, why? c) Were there any questions that were hard to understand and, if so, why? d) Did you complete all the questions and, if not, which ones didn't you complete and why? e) Did you guess on any questions and, if so, which ones and why? and f) How seriously did you take the questionnaire?

CHAPTER 4: SUMMARY OF RESULTS

Chapter 4 describes the results of the data analyses for the study. The following are provided in this chapter: a) descriptive statistics for the sample; b) descriptive statistics for the independent and dependent variables; c) factor analyses of the locus of control and academic self-efficacy measures; d) analyses of internal consistency reliability for the locus of control and academic self-efficacy measures; e) summary of the intercorrelations among the instrument measures and subscales; f) analyses pertinent to the major research hypotheses; and g) analyses pertinent to the supplemental research questions.

The study variables analyzed in this chapter are measured in a variety of ways. The independent variables, participation in extracurricular activities, academic achievement and academic track, and dependent variables, college aspirations and college expectations are treated as one-factor, one-dimensional measures. Parental encouragement and parents' level of education are measured separately for the male and female parent or guardian. For locus of control and academic self-efficacy, multi-factor subscales are incorporated into the analyses.

Summary of Descriptive Statistics for Survey Sample

The sample for the study consisted of ninth-grade students attending one of three public senior high schools in the Miami-Dade County Public School system. A total of 1139 students participated in completing the survey packet, with usable data received from 1076 students. Those surveys which were not included in the data analysis were excluded for a variety of reason, primarily for non completion of items. If a student

completed 51 of the 55 items, the data from the survey was included. If five or more items were skipped, however, the survey was excluded. Multiple responses on items where only one response was appropriate were treated as non responses. Surveys were also excluded for obvious failure on the part of the student to complete the instrument in an honest manner. For example, surveys which had all possible school activities checked on item 52 were scrutinized carefully and discarded if other questionable answering patterns were evident. All survey instruments were examined individually.

Table 4.1 provides a profile of personal characteristics for the sample. The age of respondents ranged from 13 to 19 years with the majority of the students 14 (21.4%), 15 (36.5%), 16 (19%) or 17 (13.8%) years of age. Thirteen and nineteen year old students accounted for only 0.6% of the sample and those 18 years of age accounted for 6.9%. More females (53%) participated in the study than males (43.3%). Hispanics comprised the largest sub-sample according to race with 41.8%, followed by Whites at 29.3%, African Americans at 18.1%, Asian Americans at 5.3% and Native Americans at 1.3%. Participation in the free or reduced lunch program was the method used to identify students from families with low socioeconomic status. Slightly less than a quarter of the participants (23.7%) indicated that they participated in this lunch program. Thus, 67.9% of the sample was from families with higher socioeconomic status. It should be noted that the percentages for the entire population do not total to 100% due to missing frequencies.

The demographic breakdown for the sample was compared with the personal characteristics of all ninth-grade students attending school in the Miami-Dade County

Table 4.1

Profile of Sample by Personal Characteristics of Respondents (n=1076)

Characteristic	Frequency	Percentage of Total
Age		
13	6	0.6
14	234	21.4
15	393	36.5
16	204	19.0
17	148	13.8
18	74	6.9
19	6	0.6
Frequency Missing	11	1.0
Gender		
Male	466	43.3
Female	570	53.0
Frequency Missing	40	3.7
Race		
African American	195	18.1
Asian American	57	5.3
Hispanic	450	41.8
Native American	14	1.3
White	315	29.3
Frequency Missing	45	4.2

(table continues)

Characteristic	Frequency	Percentage of Total
Socioeconomic Status		
Free/Reduced Lunch	255	23.7
No Free/Reduced Lunch	731	67.9
Frequency Missing	80	7.4

Public School System (Miami-Dade County Public Schools, 1998). This comparison revealed that some moderate differences existed between the sample and the entire population of students within the district. More ninth-grade males were in attendance than females in the M-DCPS system (52.6% males, 47.4% females) but the sample had more females (53%) than males (43.3%). While the sample percentage of Hispanics (41.8%) was a good approximation of the population in the district (50.8%), the sample varied more for the African American and White subgroups. District-wide there were 33.9% African Americans and 13.9% Whites in attendance, but the sample population was comprised of 18.1 African Americans and 29.3 whites. No demographic information was available for the age range of ninth-grade students or the number on the reduced or free lunch program, so direct comparisons on these variables were not possible. For all high school students in the M-DCPS system, however, 28.9% participated in the reduced or free lunch program which corresponds well with the 23.7% sample in this study.

For comparison purposes, the demographic information was examined according to the three predominant racial subgroups, African Americans, Hispanics and Whites. Table 4.2 present this information. In comparing the personal characteristics of the subgroups, few significant differences emerge. The age of the students in all the groups was very close to that of the entire sample with the African American subsample being close in age, the Hispanic subsample being slightly younger and the White subsample being slightly older. While the White subsample had slightly more males than the entire sample, the Hispanic subsample was very close in gender distribution to the total

Table 4.2

Profile of Sample by Race, Age, Gender and Socioeconomic Status

Characteristic	Frequency	Percentage of Total
African Americans (n=195)		
Age		
13	4	2.1
14	39	20.0
15	81	41.5
16	31	15.9
17	26	13.3
18	7	3.6
19	2	1.0
Frequency Missing	5	2.6
Gender		
Male	80	41.0
Female	108	58.4
Frequency Missing	7	3.6
Socioeconomic Status		
Free/Reduced Lunch	51	26.2
No Free/Reduced Lunch	123	63.1
Frequency Missing	21	10.8

(table continues)

Characteristic	Frequency	Percentage of Total
Hispanics (n = 450)		
Age		
13	1	0.2
14	130	28.9
15	168	37.3
16	87	19.3
17	41	9.2
18	20	4.4
19	1	0.2
Frequency Missing	2	0.4
Gender		
Male	194	43.1
Female	245	54.4
Frequency Missing	11	2.4
Socioeconomic Status		
Free/Reduced Lunch	166	36.9
No Free/Reduced Lunch	254	56.4
Frequency Missing	30	6.7
Whites (n = 315)		
Age		
13	1	.3
14	32	10.2

(table continues)

Characteristic	Frequency	Percentage of Total
15	107	34.0
16	70	22.2
17	62	19.7
18	40	12.7
19	3	1.0
Frequency Missing	0	0.0
Gender		
Male	142	45.1
Female	161	51.1
Frequency Missing	12	3.8
Socioeconomic Status		
Free/Reduced Lunch	24	7.6
No Free/Reduced Lunch	275	87.3
Frequency Missing	16	5.1

population and the African American subsample had a slightly larger number of females. The only apparent differences emerged with those participating in the reduced or free lunch program. There was little difference in the percentage of African Americans enrolled in the program than those enrolled from the entire sample, but a significantly higher number of Hispanics indicated they received either free or reduced lunches (36.9% compared to 26.6% for the entire sample). Conversely, a smaller percentage of Whites participated in the program (7.6%) than the whole population.

The demographic differences between the sample population and M-DCPS can largely be accounted for by the use of three schools in the study. Schools in the M-DCPS vary dramatically in their racial makeup and an effort was made to select three schools which would balance each other and provide a representative sample population. Since similar results were found (see Chapter 4 for elaboration) when the data were compared by race and school and the results of the data analyses for a hold out sample in another state were similar, the disparities between the sample and the entire district did not effect the results of the study.

Summary of Descriptive Statistics for Measurement Instrument Items

Descriptive statistics were calculated for each measure used to operationalize the dependent and independent variables in the study. For the measures of academic self-efficacy, academic achievement, college aspirations and college expectations the means, standard deviations and the percentages of the maximum possible score for each item were computed. For the measures of locus of control, parental expectations, parents' level of education, participation in extracurricular activities and academic track,

frequency distributions were calculated. Tables of these descriptive statistics are located in Appendix B.

The actual number of responses varied for each measure and for each item on the multiple item measures. The raw data were examined prior to analyses for missing responses and, in order to maximize the number of useable responses for the computation of descriptive statistics, the item grand means were substituted for missing responses for measures where a mean was calculated. When a mean score was not calculated the number of missing responses is shown (see Appendix B).

The range in item means and standard deviations for each instrument and subscale are reported in Tables 4.3 and 4.4. For the academic self-efficacy scale the range in the means and standard deviations of the subscales varied little although with the fourth factor, Persistence, the means were slightly lower. The low mean score for all subjects reported under the Academic Achievement measure were accounted for by the African American subsample, while the White subsample accounted for the high mean score for all subjects. The difference in the standard deviation for Academic Achievement was the least for Whites and greatest for African Americans, except for science, where Hispanics accounted for the highest standard deviation.

For both the College Aspiration and College Expectation measures, the White subsample recorded the highest mean score and the lowest standard deviation. African Americans had the lowest mean score for College Aspirations but Hispanics had the low score for College Expectations. The highest standard deviation for College Aspirations and College Expectations was accounted for by the African American subsample.

Table 4.3

Summary of Item Means for All Continuous, Rank and Categorical Measures and Subscales by Race (n = 1076)

Instrument/ Subscale	Maximum Item Rating	Means			
		African Americans	Hispanics	Whites	Total Sample
Self-efficacy	4	2.68-3.46	2.73-3.43	2.68-3.30	2.72-3.35
Mathematics	4	2.80-3.03	2.73-2.94	3.07-3.22	2.92-3.00
General Subjects	4	2.68-3.46	3.01-3.43	2.71-3.30	2.84-3.35
Science/Biology	4	2.89-3.12	2.91-3.15	3.14-3.25	2.98-3.18
Persistence	4	2.73-2.86	2.74-2.90	2.68-3.04	2.72-2.96
Academic Achievement					
English	5	3.73	3.75	4.31	3.94
Mathematics	5	3.25	3.47	4.02	3.64
Science	5	3.57	3.74	4.23	3.89
Social Studies	5	3.65	3.75	4.22	3.90
College Aspirations	4	3.62	3.63	3.68	3.70
College Expectations	4	3.57	3.51	3.77	3.61

Table 4.4

Summary of Item Standard Deviations for All Continuous, Rank and Categorical Measures and Subscales by Race (n = 1076)

Instrument/ Subscale	Maximum Item Rating	Means			
		African Americans	Hispanics	Whites	Total Sample
Self-efficacy	4	0.67-0.98	0.67-0.92	0.68-0.95	0.67-0.94
Mathematics	4	0.81-0.98	0.81-0.92	0.82-0.87	0.82-0.94
General Subjects	4	0.66-0.84	0.67-0.77	0.69-0.95	0.67-0.86
Science/Biology	4	0.70-0.79	0.71-0.80	0.68-0.75	0.70-0.79
Persistence	4	0.78-0.89	0.74-0.87	0.70-0.76	0.75-0.83
Academic Achievement					
English	5	1.01	.91	.78	.92
Mathematics	5	1.25	1.01	.87	1.06
Science	5	.93	.94	.79	.93
Social Studies	5	1.09	1.00	.77	.97
College Aspirations	4	.65	.67	.44	.61
College Expectations	4	.67	.68	.48	.63

Summary of Results of Factor Analyses

Prior to conducting the analyses relevant to the primary research hypotheses and secondary research questions in the study, a series of factor analysis procedures was completed for the self-efficacy and locus of control measures in order to determine empirically identifiable conceptual dimensions of the measures. The results of these analyses are reported in the section that follows.

Locus of Control Factor Analyses

For this study, an exploratory factor analysis was completed for the 23 items on the Rotter Locus of Control scale to further test the dimensionality of the locus of control construct. An unconstrained solution was computed followed by solutions systematically extracting from one to nine factors. These procedures were completed for the entire sample and separately for subsamples based on race and gender. Table 4.5 provides a summary of the one-factor, principal components solution for the Internal-External Locus of Control scale. Items were retained on factors given the decision rules outlined in Chapter III (p.91). Factor loadings for items retained ranged from a low of .38 to a high of .46. Twelve items failed to demonstrate loadings meeting the minimum criteria for retention in the one-factor solution. A rather low total of 9.93% of the variance in the data was explained by the one-factor solution.

The results of the four-factor, orthogonal solution (Table 4.6) were ultimately determined to be the most acceptable multiple factor representation of the data. Both the three and the five-factor orthogonal solutions also provided reasonable conceptual fits with the findings of the previous factor analysis of the I-E scale. However, they had

Table 4.5

Summary of the Factor Structure Coefficients for Items Retained for the One-Factor Solution for the Internal-External Locus of Control Scale (n = 1076)

I-ELOC Item	1 Factor[a]
18	.27
19	.19
20	.25
21	.27
22	.19
23	.14
25	.20
26	**.46**
27	**.38**
28	**.44**
29	**.41**
31	**.43**
32	**.41**
33	**.38**
34	**.39**
36	.03
37	.09
38	.29

(table continues)

I-ELOC Item	1 Factor
39	**.38**
41	**.44**
42	.03
44	**.38**
45	.07
Variance Explained[b] = 9.93%	

Bold type indicates item loadings which meet criteria established for item retention
a. Principal components solution
b. Percentage of item variance explained by the one-factor solution

Table 4.6

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale (n = 1076)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
*18	.13	.09	.04	.29	.20
19	.15	-.02	**.38**	-.01	.10
*20	.12	.27	.18	.03	-.12
21	.25	**.47**	.07	-.16	-.05
22	.23	-.12	.24	**.38**	-.01
23	.26	-.07	.05	.01	**.50**
*25	.09	.07	.11	.02	.27
26	.35	**.54**	.24	-.05	-.02
27	.44	.23	-.01	**.61**	-.14
28	.42	.24	**.58**	.10	-.13
29	.22	**.44**	.02	.12	.11
31	.41	**.55**	-.16	.29	0
32	.51	.12	-.05	**.70**	.08
33	.50	-.08	**.66**	.19	.15
34	.29	.34	.01	.02	**.42**
36	.15	-.05	-.08	-.04	**.37**
37	.22	-.06	.01	-.03	**.43**

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV
38	.44	.17	**.60**	-.23	-.03
*39	.17	.15	.26	.20	.20
41	.39	.35	.02	.03	**.52**
42	.23	.14	0	**-.36**	.28
44	.20	**.38**	0	.22	.07
45	.21	-.30	.22	.09	**.41**
Variance Explained[b]		7.78%	6.97%	6.73%	6.67%
Total Variance Explained[c] 28.15%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained by the four-factor solution.

inherent problems which render them less desirable. Seven of the twenty-three items identified in the three factor solution did not load, and the solution accounted for only 22.6% of the total item variance. The five-factor solution, on the other hand, accounted for 33.55% of the total item variance, but had two items which did not load and one which had multiple loadings. Table C.1 and C.2 in Appendix C contain the three and five-factor solutions calculated for the Locus of Control Scale.

A total of nineteen items loaded on the four-factor orthogonal solution; five on Factor I, four on Factors II and III, and six on Factor IV. Factor I , identified as Academic Control, was comprised of items pertaining to students' perceived abilities to regulate personal outcomes in the school setting. Factor I accounted for 7.78% of the variance in the data for the four-factor solution. Factor II was labeled Politics/World Affairs and accounted for 6.97% of the variance in the data for the solution. Items loading on this factor represent students' feelings regarding their potential to make a difference in the events occurring throughout the world, particularly in the political arena. The third factor, Leadership and Success combined students' conceptions of what is required to lead their peers and the degree to which luck or fate effects personal success. This factor accounted for 6.73% of the variance in the data for this solution. The items loading on Factor IV, labeled as Interpersonal Relations/Influence, suggest students' perceived control over their relationships with peers and the ability to direct the daily events of their own lives. Factor IV accounted for 6.67% of the variance in the data for the four-factor solution.

The Factor structure coefficients for this four-factor solution ranged from -.36 to .70 with four items having loadings insufficient to be retained. The total variance explained in the data for this solution was 28.15%. Table D.1 in Appendix D gives an item location index for the factored subscales of the Internal-External Locus of Control Scale. Item numbers can be cross referenced with items 18 through 45 of the Student Questionnaire included in Appendix A.

All of the intercorrelations between the subscales identified in the four-factor solution proved to be positive in direction and minimal in magnitude. These correlation were as follows: Academic Control and Politics/World Affairs, $r = .16$ ($p<.01$); Academic Control and Leadership and Success, $r = .19$ ($p<.01$); Academic Control and Interpersonal Relations/Influence, $r = .10$ ($p<.01$); Politics/World Affairs and Leadership and Success, $r = .09$ ($p<.01$); Politics/World Affairs and Interpersonal Relations/Influence, $r = .12$ ($p<.01$); and Leadership and Success and Interpersonal Relations/Influence, $r = .08$ ($p>.01$).

A four-factor solution was also calculated for three of the racial subgroups, African Americans, Hispanics and Whites, and for males and female groups, to compare these analysis results with the factor solution for the entire sample. Tables C.3, C.4, C.5, C.6 and C.7 in Appendix C contain these solutions. The pattern of item/factor loadings for the four-factor solution for the African American subgroup was patterned differently from the solution for the entire group, with the factor loadings which meet the criteria established for retention changing to different factors on all but four items. The solution for Hispanics also exhibited substantial differences in the patterning of

item/factor loadings. Here, thirteen of the 23 items exhibited changes in the location of the loadings which meet the retention criteria. For Whites, the differences were less obvious but still noteworthy, with nine items demonstrating changes in the patterning of item/factor loadings.

The pattern of item/factor loadings for males and females also differed significantly from the solution computed for the entire sample. For males, eighteen of the 23 items exhibited changes in the location of the loadings meeting the retention criteria and for females, changes occurred in seventeen items.

Self-Efficacy Factor Analyses

A review of previous factor analysis of the Children's Self-efficacy scale would have little relevance to this study since only the academic component of the scales is used here and additional items have been incorporated into the scale. Previous factor analyses have been completed using the entire scale which is comprised of 57 items with preassigned subscales for a) enlisting social resources, b) academic achievement, c) self-regulated learning, d) leisure time skills and extracurricurlar activities, e) self-regulation, f) meeting others' expectations, g) social settings, h) self-assertiveness and i) enlisting parental and community support.

As was done with the locus of control measure, an exploratory principal components analysis was also conducted for the self-efficacy scale to determine the dimensionality of the measure. Multiple factor solutions were computed and reviewed. Table 4.7 summarizes the results of the one-factor solution. A total of twelve of the thirteen self-efficacy items loaded on a single factor with item loadings ranging from a low of .39 to a high of .70. This solution explained 27.02% of the variance in the data.

Table 4.7

Summary of the Factor Structure Coefficients for Items Retained for the One-Factor Solution for the Self-Efficacy Scale (n = 1076)

Self-Efficacy Item	1 Factor[a]
4	**.70**
5	**.60**
6	**.62**
7	**.58**
8	**.58**
9	**.58**
10	**.50**
11	**.39**
12	**.39**
13	**.53**
14	.18
15	**.42**
16	**.48**
Variance Explained[b] = 27.02%	

Bold type indicates item loadings which meet criteria established for item retention
a. Principal components solution
b. Percentage of item variance explained by the one-factor solution

A review of the multi-factor solutions for the self-efficacy scale suggested that a four-factor, orthogonal solution represented the best statistical and conceptual interpretation of the data. Table 4.8 summarizes the results of this solution. The percentage of the total item variance explained by the four-factor solution was 58.9% with item loadings ranging form a low of .47 to a high of .88. All but item number four of the thirteen items in the self-efficacy scale were retained in the four-factor solution and only one retained item had a loading below .50. Item four was not retained because it was cross loaded.

Factor I, Mathematics, consisted of three items and accounted for 18% of the variance for the solution. This factor pertained to students' beliefs in their abilities to learn general mathematics and algebra, and their abilities to perform a specific algebraic computation. The items which were retained on Factor II, General Subjects, depicted students' beliefs in their abilities to learn four diverse academic subjects: English grammar, language skills, computers and foreign languages. The amount of variance for the solution accounted for by this factor was 15.67%. The third factor, Science/Biology was comprised of two items which accounted for 14.14% of the variance for the four-factor solution. Here, the perceptions of students regarding their ability to learn general science and biology were measured. Factor IV, Persistence consisted of three items which measured students' resolve to attempt and complete mathematic problems when faced with difficulties. This factor accounted for 11.09% of the variance for the four-factor solution. Table D.2 in Appendix D presents an item location index for the academic self-efficacy factored subscales and can be cross-referenced with items 4-16 on the original instrument items presented in Appendix A.

Table 4.8

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale (n = 1076)

Self-Efficacy Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
4	.51	.33	.35	.45	.28
5	.73	**.84**	.05	.06	.12
6	.79	**.88**	.05	.07	.10
7	.58	**.74**	.10	.13	.08
8	.80	.08	.15	**.88**	.03
9	.81	.09	.15	**.88**	.03
10	.68	-.08	**.78**	.12	.22
11	.33	.14	**.55**	.08	-.06
12	.38	.09	**.59**	.11	-.11
13	.61	.03	**.75**	.11	.18
14	.65	-.10	-.04	-.02	**.80**
15	.46	.28	.02	.07	**.61**
16	.35	.28	.20	.10	**.47**
Variance Explained[b]		18%	15.67%	14.14%	11.09%
Total Variance Explained[c]	58.9%				

Bold type indicates item/factor location

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

The intercorrelations among the academic self-efficacy subscales were as follows: Mathematics and General Subjects: $r = .17$ ($p < .01$); Mathematics and Science/Biology: $r = .22$ ($p < .01$); Mathematics and Persistence: $r = .31$ ($p < .01$); General Subjects and Science/Biology: $r = .33$ ($p < .01$); General Subjects and Persistence: $r = .20$ ($p < .01$); and Science/Biology and Persistence: $r = .16$ ($p < .01$).

As with the Internal-External Locus of Control Scale, a four-factor solution was computed for the African American, Hispanic and White subgroups in the sample for academic self-efficacy, as well as for males and females. These solutions are shown in Tables C.8, C.9 C.10, C.11 and C.12 of Appendix C.

Unlike the four-factor solutions by race and gender for the locus of control scale, these subgroups demonstrated only moderate differences from the entire group in how the items loaded on the various factors. With the White subsample the location of the factor loadings, which met the criteria established for retention, remained essentially unchanged. For the Hispanic subsample, the only demonstrated difference occurred with item sixteen (If you can't solve a particular kind of math problem how likely are you to attempt to solve a similar problem?) which did not have a sufficient loading on any one factor. The differences were slightly greater for the African American subsample with changes in the pattern of loadings for five items. Here, item four demonstrated a significant loading on factor two but with the entire sample, failed to meet the criteria for item/factor retention; items eleven and twelve loaded on factor four instead of factor two; and items fifteen and sixteen loaded on factor one instead of factor four. For the male subsample, the only difference from the entire sample was that item

seven did not load on the first factor and item 16 loaded on Factor I instead of Factor IV. The only difference between the female subsample and the total sample was in item four which loaded on the third factor rather than having multiple loadings.

A series of factor analyses was also completed for the items on the academic self-efficacy scale which were taken from the Bandura scale (Bandura, 1989). No appreciable differences were found in these analyses from those previously demonstrated by the factor analysis of all 13 of the academic self-efficacy items.

Summary of Factor Analyses

The factor analyses of the measures for locus of control and academic self-efficacy resulted in quite different results. While a four-factor orthogonal solution was deemed to be most representative solution for both measures, the strength of the factor loadings for locus of control were much lower than those for the academic self-efficacy measure. The total variance explained for locus of control was relatively low at 28.15% but considerably higher for academic self-efficacy at 58.9%. Also, when the factor structures of the race and gender subsamples were compared with the entire sample, the results for the locus of control measure differed substantially, while the results for academic self-efficacy remained relatively stable.

Summary of Results of Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for the locus of control and academic self-efficacy subscales identified through the various factor analyses. Table 4.9 contains a summary of these coefficients.

Table 4.9

Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales (n = 1076)

Instrument/Subscale	Alpha Coefficient
Locus of Control (23)[a]	
Subscales	
Combined 23 Items	.54
Academic Control (5)[b]	.41
Politics/World Affairs (4)	.42
Leadership and Success (4)	.17
Interpersonal Relations/Influence (6)	.34
Academic Self-efficacy (13)	
Subscales	
Mathematics (3)	.80
General Subjects (4)	.63
Science/Biology (2)	.79
Persistence (3)	.43

a. Total number of items for the factor-analyzed version of the instrument in this study
b. Number of items on the subscale

Locus of Control Reliability Analyses

Alpha coefficients were computed for the four factored subscales and for all 23 items on the Internal-External Locus of Control Scale as a single measure. The resulting coefficients were all quite low, especially for the subscales identified in the four-factor solution. The highest coefficient was for Politics/World Affairs (Alpha = .42) and the lowest was with Leadership and Success (Alpha = .17). For Academic Control the Alpha coefficient was .41 and for Interpersonal Relations/Influence Alpha = .34. The Alpha coefficient for the 23 items combined into a single item measure, increased to only .54.

Academic Self-Efficacy Reliability Analyses

Alpha coefficients were also computed for the four subscales identified in the four-factor solution for the measures of academic self-efficacy. These results were higher than those computed for locus of control ranging from a high of .80 for Mathematics to a low of .43 for Persistence. Although this latter reliability coefficient is rather low, the other two subscales demonstrated much higher coefficients with Science/Biology at .79 and General Subjects at .63. This information is also shown in Table 4.9

Reliability Analyses by Racial Subgroups

Cronbach Alpha internal consistency reliability coefficients were also computed for the subscales of various measures by racial subsamples which are reported in Tables E.1, E.2 and E.3. In most cases, the reliability coefficients for the African American and Hispanic subsamples were lower and the coefficients computed for the White subsample were higher than those computed for the entire sample.

Reliability Analyses by School

In order to provide information about possible inconsistencies in data collection between the three schools used in the study, Cronbach Alpha internal consistency reliability coefficients were computed for the data sets from each school. There were no appreciable differences in the magnitude and direction of these coefficients when compared to the coefficients calculated for the entire sample indicating little systematic between school error.

Rationale for Final Structure of Measures

Prior to submitting the study measures to analyses pertinent to the primary research hypotheses and the secondary research questions, certain decisions were made regarding the structure of the measures used in the analyses. First, it was determined that locus of control would be represented by two measures, one measure for the combined 23 items of the Internal-External Locus of Control Scale, and one measure for the first factor identified in the four-factor orthogonal solution, Academic Control. The combined 23 item measure was deemed more desirable than the four factors of the four-factor solution because the internal consistency reliability coefficient for this measure was higher than the coefficients calculated for the four subscales. The subscale, Academic Control, was added to the analyses because this factor provides the best conceptual fit with the focus of the study, determining motivators for continued academic pursuit.

The second decision was to utilize the four factors identified in the four-factor orthogonal solution for academic self-efficacy. This solution provided four clear

subscales for the construct, three of which exhibited reasonably high internal consistency reliability coefficients. Although the reliability for the fourth factor, Persistence, was relatively low, this measure was included in the study due to the need to explore the conceptual significance of this aspect of the total efficacy construct.

Summary of Analyses for Primary Research Hypotheses

The six primary research hypotheses of the study all posit a statistically significant ($p<.01$; one-tailed tests) relationship between the measures of locus of control and self-efficacy and the measures of college aspirations and expectations. The first four hypothesize that statistically significant correlations exist between the locus of control and self-efficacy measures and the dependent variables. Hypotheses five and six, expand upon the relationship by postulating that locus of control and self-efficacy account for a statistically significant amount of variation in students' college aspirations and expectations beyond that accounted for by the five traditional variables. The more conservative .01 level of significance was chosen for this study to decrease the possibility of correlations occurring by chance being selected as significant, given the large sample size.

Bivariate Correlation Analyses

To address Hypotheses 1-4, bivariate correlation analyses were conducted between the study variables and these correlations are shown in tables 4.10-4.13. In addressing each of these hypotheses, in turn, reference is made to these tables.

Research Hypothesis 1: There is a statistically significant, positive relationship between adolescents' levels of academic self-efficacy and their aspirations to attend college.

Table 4.10

Summary of Intercorrelations of College Aspirations and College Expectations with Other Study Variables

Instrument/Measure	Aspirations		Expectations	
	r	n	r	n
Academic Self-efficacy				
Mathematics	.19*	1065	.20*	1063
General Subjects	.21*	1065	.18*	1063
Science/Biology	.24*	1065	.21*	1063
Persistence	.18*	1065	.17*	1063
Locus of Control				
23 Combined Items	-.09**	892	-.10**	890
Academic Control	-.11*	1000	-.11*	999
Parental Expectations				
Father/Male Guardian	.25*	778	.24*	778
Mother/Female Guardian	.29*	813	.24*	814
Parents' Education Level				
Father/Male Guardian	.27*	880	.23*	880
Mother/Female Guardian	.21*	899	.23*	900
Academic Achievement	.33*	1017	.41*	1017
Extracurricular Activities	.18*	924	.20*	927
High School Track	-.07	721	.01	724

* $p<.001$, ** $p<.01$

Table 4.11

Summary of Intercorrelations of Academic Self-Efficacy Subscales with Other Study Variables

Instrument/Measure	Math		G.S.		S/B		Pers.	
	r	n	r	n	r	n	r	n
Locus of Control								
23 Combined Items	-.13*	895	-.13*	895	-.09**	895	-.11*	895
Academic Control	-.15*	1008	-.16*	1008	-.10**	1008	-.13*	1008
Parental Expectations								
Father/Male Guardian	.25*	781	.14*	781	.15*	781	.10**	781
Mother/Female Guardian	.22*	819	.16*	819	.13*	819	.11**	819
Parents' Education Level								
Father/Male Guardian	.20*	883	.01	883	.15*	883	.06	883
Mother/Female Guardian	.14*	915	.02	905	.10**	905	.04	905
Academic Achievement	.44*	1023	.20*	1023	.38*	1023	.26*	1023
Extracurricular Activities	.21*	932	.18*	932	.14*	932	.09**	932
High School Track	.05	729	.03	729	.03	729	.01	729
College Aspirations	.19*	1065	.21*	1065	.24*	1065	.18*	1065
College Expectations	.20*	1063	.18*	1063	.21*	1063	.17*	1063

Note: The following abbreviations are utilized to facilitate formatting: Math = Mathematics subscale from Academic Self-efficacy scale; G.S. = General Subjects subscale from the Academic Self-efficacy scale; S/B = Science/Biology subscale from the Academic Self-efficacy scale; and Pers. = Persistence subscale from the Academic Self-efficacy scale.

* $p<.001$, ** $p<.01$

Table 4.12

Summary of Intercorrelations of Locus of Control Subscales with Other Study Variables

Instrument/Measure	23 Items		Academic	
	r	n	r	n
Academic Self-efficacy				
Mathematics	-.13*	895	-.15*	1008
General Subjects	-.13*	895	-.16*	1008
Science/Biology	-.09**	895	-.10**	1008
Persistence	-.11*	895	-.13*	1008
Parental Expectations				
Father/Male Guardian	-.04	662	-.09**	734
Mother/Female Guardian	-.04	694	-.08**	770
Parents' Education Level				
Father/Male Guardian	.02	752	-.06	832
Mother/Female Guardian	.01	767	-.05	855
Academic Achievement	-.07**	861	-.17*	963
Extracurricular Activities	-.02	779	-.10**	872
High School Track	-.03	615	.03	687
College Aspirations	-.09**	892	-.11*	1000
College Expectations	-.09**	890	-.11*	999

* $p<.001$, ** $p<.01$,

Table 4.13

Summary of Intercorrelations of the Traditional Variables of College Choice

Instrument/Measure	1	2	3	4	5	6	7
Parental Expectations							
1. Father/Male Guardian	--						
2. Mother/Female Guardian	.73*	--					
Parents' Education Level							
3. Father/Male Guardian	.35*	.28*	--				
4. Mother/Female Guardian	.27*	.34*	.60*	--			
5. Academic Achievement	.31*	.35*	.36*	.32*	--		
6. Extracurricular Activities	.21*	.21*	.18*	.17*	.26*	--	
7. High School Track	-.03	.00	.04	.01	.04	.04	--

Note: The number preceding the measure in the Instrument/Measure column corresponds to the number listed at the top of the matrix indicating the horizontal position of the variable in the matrix. The number of respondents reporting was different for each variable ranging from a low of 576 to a high of 803.

* $p<.001$

To address this hypothesis, Pearson product moment correlation analyses were completed using individual student responses as the units of analysis. Correlation coefficients were computed between the four factored subscales of academic self-efficacy and question 47 on the survey relating to students' aspirations to attend college. Although the correlations between all the efficacy subscales and college aspirations proved to be statistically significant ($p<.001$), the magnitude of the correlations was relatively low. These correlations with aspirations ranged from a high of .24 for the Science/Biology subscale to a low of .18 for the Persistence subscale.

Research Hypothesis 2: There is a statistically significant, positive relationship between adolescents' levels of academic self-efficacy and their expectations to attend college.

This hypothesis was examined in a manner similar to the first hypothesis, with Pearson product moment correlations computed between the four factored subscales from the academic self-efficacy measure and question 48 on the survey pertaining to students' expectations to attend college. The results of this analysis also demonstrated correlations of a relatively low magnitude although all the relationships were statistically significant ($p<.001$) and positive in direction. Two subscales, Mathematics and Science/Biology had the highest correlation with College Expectations at .20. The subscale with the lowest correlation with College Expectations was Persistence ($r= .17$).

Research Hypothesis 3: There is a statistically significant, positive relationship between adolescents' internal locus of control and their aspirations to attend college.

To ascertain the relationship between the college aspirations and the locus of control of adolescents, the 23 questions measure of the independent variable and the Academic Control subscale identified in the four-factor orthogonal solution were correlated with item 47 on the survey using Pearson product moment correlation analyses. These correlations were rather negligible and were negative in direction. The correlation between the 23 combined item measure and College Aspirations was $r = -.10$ and the correlation between Academic Control and College Aspirations was $r = -.11$. Since the items on the Internal-External Locus of Control Scale are scored in the external direction (the higher the score the greater the externality of the participants), these results indicated a negative relationship between an external orientation and College Aspirations.

Research Hypothesis 4: There is a statistically significant, positive relationship between adolescents' internal locus of control and their expectations to attend college.

Again, correlation analyses were used to provide information regarding this hypothesis. To test this hypothesis, the 23 combined item measure for locus of control and the Academic Control subscale were correlated to College Expectations. As with the correlations with College Aspirations, the two independent variables both demonstrated quite modest correlations with College Expectations. The correlation for the 23 item measure was $r = -.10$ and the correlation for Academic Control was $r = -.11$.

Regression Analyses

In addition to bivariate correlation analyses, both standard multiple and step-wise regression analyses were computed to ascertain possible multivariate relationships

between the dependent and independent variables. These results were used to determine if the inclusion of the measures for locus of control and academic self-efficacy into the college choice model significantly increase the strength of the relationships in the model. For these analyses, College Aspirations and College Expectations were treated as criterion variables and regressed on the five traditional variable of college choice and the locus of control and self-efficacy subscales.

Research Hypothesis 5: The psychological constructs of self-efficacy and locus of control account for a statistically significant amount of variation in students' college aspirations beyond that accounted for by the five traditional variables of college choice.

To address this hypothesis, a regression of College Aspirations on the traditional variables of college choice and the locus of control and academic self-efficacy subscales was completed. Table 4.14 summarizes the results of these analyses.

For this analyses, after entering the predictor variable which correlated the highest with the criterion variable, all subsequent variables entered contributed rather minimally to the magnitude of the multivariate relationships explored. In this regression analysis, Mother's Expectations was identified as the first predictor variable ($R^2 = .1155$) followed by Academic Achievement ($R^2 = .0338$) and Extracurricular Activities ($R^2 = .009$). Although the latter two variables are statistically significant at $p<.0001$ and $p<.05$ respectively, both added little to the magnitude of the multiple correlations. None of the academic self-efficacy or locus of control measures met the .01 significance level for entry into the model. For this three variable model, the multiple correlation was $R = .3977$.

Table 4.14

Stepwise Regression of College Aspirations Against the Traditional Variables of College Choice and Locus of Control and Academic Self-Efficacy Subscales

Step	Variable Entered	R	R^2	$\triangle R^2$	F	p
1	Mother's Expectations	.3399	.1155	.1155	59.54	.0001
2	Academic Achievement	.3864	.1493	.0338	18.06	.0001
3	Extracurricular Activities	.3977	.1582	.0090	4.84	.0282

No other variable met the .01 significance level for entry into the model.

Research Hypothesis 6: The psychological constructs of self-efficacy and locus of control account for a statistically significant amount of variation is students' expectations beyond that accounted for by the five traditional variables of college choice.

To address Hypothesis 6, the regression of College Expectations on the traditional variables of college choice and the locus of control and academic self-efficacy subscales was utilized This regression is reported in table 4.15.

The R^2 of the first variable, Academic Achievement, in the regression of College Expectations against the traditional variables and the locus of control and academic self-efficacy subscales, was .1404. Only one additional variable, Mother's Expectations (R^2 = .03) demonstrated statistical significance ($p<.01$) to be included given the level of significance established for the study. Extracurricular Activities (R^2 = .0129) is also shown in the table although it did not demonstrate statistical significance at the .01 level. For this three variable model, the final multiple correlation was R = .4283.

Summary of Analyses for Supplemental Research Questions

In addition to the examination of the primary research hypotheses, data analyses was also conducted to address the seven supplemental research questions identified in Chapter 1. These results are presented here.

Research Question 1: Does the construct academic self-efficacy serve a mediating role in the relationship between the traditional variables of college choice and College Aspirations?

Table 4.15

Stepwise Regression of College Expectations Against the Traditional Variables of College Choice and the Locus of Control and Academic Self-Efficacy Subscales

Step	Variable Entered	R	R^2	ΔR^2	F	p
1	Academic Achievement	.3747	.1404	.1404	78.92	.0001
2	Mother's Expectations	.4128	.1704	.0300	17.43	.0001
3	Extracurricular Activities	.4283	.1834	.0129	7.60	.0060

No other variable met the .01 significance level for entry into the model.

To address this hypothesis, partial correlation analyses were completed between Academic Achievement and College Aspirations while controlling for the effects of the four academic self-efficacy variables. Since Academic Achievement was the independent variable which demonstrated the strongest correlation with College Aspirations, it was determined that this variable would be studied first, followed by analyses using the other independent variables only if significant results were found for Academic Achievement. This approach was also utilized for the subsequent research questions related to the partial correlation analyses.

When controlling for the academic self-efficacy variables, the bivariate correlation of $r = .33$ was reduced as follows: Mathematics Self-Efficacy, $r = .27$; General Subjects Self-Efficacy, $r = .30$; Science/Biology Self-Efficacy, $r = .27$; and Persistence Self-Efficacy, $r = .30$. These results are shown in Table 4.16. The change in the magnitude of the original correlation between Academic Achievement and College Expectations accounted for by the four academic self-efficacy variables in these analyses ranged from .03 to .05.

Research Question 2: Does the construct academic self-efficacy serve a mediating role in the relationship between the traditional variables of college choice and College Expectations?

Similar to the analyses used for the previous research question, the partial correlations between Academic Achievement and College Expectations were computed while controlling for the effects of the four academic self-efficacy variables and are reported in Table 4.17. These analyses produced the following partial correlation

Table 4.16

Partial Correlations Between the Global Academic Achievement Index and College Aspiration, Controlling for the Effects of the Academic Self-Efficacy Measures

Academic Self-Efficacy Measure	r[a]	Partial Correlation Coefficients[b]	Δr[c]
Mathematics	.33	.27	.05
General Subjects	.33	.30	.03
Science/Biology	.33	.27	.05
Persistence	.33	.30	.03

a. Correlations in column are between Academic Achievement and College Aspirations
b. Partial correlations between Academic Achievement and College Aspirations controlling for the effects of each Academic Self-Efficacy measure
c. Change in original (.41) correlation between Academic Achievement and College Aspirations

Table 4.17

Partial Correlations Between the Global Academic Achievement Index and College Expectation, Controlling for the Effects of the Academic Self-Efficacy Measures

Academic Self-Efficacy Measure	r[a]	Partial Correlation Coefficients[b]	Δr^c
Mathematics	.41	.36	.05
General Subjects	.41	.38	.03
Science/Biology	.41	.37	.04
Persistence	.41	.38	.03

a. Correlations in column are between Academic Achievement and College Expectations
b. Partial correlations between Academic Achievement and College Expectations controlling for the effects of each Academic Self-Efficacy measure
c. Change in original (.41) correlation between Academic Achievement and College Expectations

results: Mathematics/College Expectation, r = .36, General Subjects/College Expectations, r = .38, Science/Biology/College Expectations, r = .37, and Persistence/College Expectations, r = .38. Since the bivariate correlation between Academic Achievement and College Expectations was .41, the change in the magnitude of the original correlation accounted for by the academic self-efficacy variables also ranged from .03 to .05.

Research Question 3: Does the construct locus of control serve a mediating role in the relationship between the traditional variables of college choice and College Aspirations?

Partial correlation analyses were computed between Academic Achievement and College Aspirations controlling separately for the effects of the 23 item locus of control measure and the factored subscale Academic Control to address this hypothesis (Table 4.18). When controlling for the effects of the 23 item measure, the partial correlation between the two variables was r = .31 and when controlling for the effects of Academic Control, the partial correlation was r = .33. Since the bivariate correlations between Academic Achievement and College Aspirations was r = .33, reduction in the magnitude of the correlation between these variables for the 23 item measure was .02 and for Academic Control, .00.

Research Question 4: Does the construct locus of control serve a mediating role in the relationship between the traditional variables of college choice and College Expectations?

Table 4.18

Partial Correlations Between the Global Academic Achievement Index and College Aspirations, Controlling for the Effects of the Locus of Control Measures

Locus of Control Measure	r[a]	Partial Correlation Coefficients[b]	Δr[c]
23 Item Measure	.33	.31	.02
Academic Control	.33	.33	.00

a. Correlations in column are between Academic Achievement and College Aspirations
b. Partial correlations between Academic Achievement and College Aspirations controlling for the effects of each Academic Self-Efficacy measure
c. Change in original (.41) correlation between Academic Achievement and College Aspirations

Again, partial correlation analyses were used to address Question 4, with partial correlations computed for the relationship between Academic Achievement and College Expectations while controlling for the effects of the 23 item measure of locus of control and the Academic Control subscale. Table 4.19 reports a summary of these analyses. In both analyses, the correlation between the two variables was found to be $r = .39$ which, when compared to the bivariate correlation of $r = .41$ between the two, showed a reduction in the magnitude of the original correlation of only .02.

Since only minimal amounts of the variance were explained by the measures for locus of control and academic self-efficacy in the partial correlation analyses with Academic Achievement and College Aspirations and College Expectations, the decision was made to terminate any further partial correlation analyses with the other traditional variables.

Research Question 5: Do significant differences exist in the model of college choice based on race?

To ascertain if any significant differences exist between African Americans, Hispanic and White subgroups, Pearson product moment correlation analyses were computed by race for the study variables. The results the these analyses are presented in Tables 4.20, 4.21 and 4.22.

The most significant differences in the results were found for the African American subgroup. In the analyses using College Aspirations and College Expectations as the dependent variables, the bivariate correlation coefficients computed for this group differed from those computed for the entire group by .10 or greater for the

Table 4.19

Partial Correlations Between the Global Academic Achievement Index and College Expectations, Controlling for the Effects of the Locus of Control Measures

Locus of Control Measure	r[a]	Partial Correlation Coefficients[b]	Δr^c
23 Item Measure	.41	.39	.02
Academic Control	.41	.39	.02

a. Correlations in column are between Academic Achievement and College Expectations
b. Partial correlations between Academic Achievement and College Expectations controlling for the effects of each Academic Self-Efficacy measure
c. Change in original (.41) correlation between Academic Achievement and College Expectations

Table 4.20

Summary of Intercorrelations Among the Independent Variables and College Aspirations and College Expectations, African American Subsample (n = 46)

Instrument/Measure	Aspirations	Expectations
Academic Self-efficacy		
Mathematics	.30	.24
General Subjects	.34	.17
Science/Biology	.41**	-.08
Persistence	.40**	.23
Locus of Control		
23 Combined Items	-.30	-.39**
Academic Control	-.22	-.22
Parental Expectations		
Father/Male Guardian	.22	.15
Mother/Female Guardian	.04	-.02
Parents' Education Level		
Father/Male Guardian	.11	.01
Mother/Female Guardian	.12	.08
Academic Achievement	.28	.26
Extracurricular Activities	.21	.16
High School Track	.13	-.09

** $p<.01$,

Table 4.21

Summary of Intercorrelations Among the Independent Variables and College Aspirations and College Expectations, Hispanic Subsample (n = 156)

Instrument/Measure	Aspirations	Expectations
Academic Self-efficacy		
Mathematics	.12	.08
General Subjects	.27*	.21**
Science/Biology	.21**	.14
Persistence	.25*	.21**
Locus of Control		
23 Combined Items	-.10	-.12
Academic Control	-.22**	-.21**
Parental Expectations		
Father/Male Guardian	.36*	.28*
Mother/Female Guardian	.46*	.41*
Parents' Education Level		
Father/Male Guardian	.19**	.06
Mother/Female Guardian	.24**	.21**
Academic Achievement	.25**	.42*
Extracurricular Activities	.20	.21**
High School Track	-.05	-.08

* $p<.001$, ** $p<.01$,

Table 4.22

Summary of Intercorrelations Among the Independent Variables and College Aspirations and College Expectations, White Subsample (n = 173)

Instrument/Measure	Aspirations	Expectations
Academic Self-efficacy		
Mathematics	.09	.29*
General Subjects	.21**	.24**
Science/Biology	.24**	.18
Persistence	.14	.15
Locus of Control		
23 Combined Items	-.05	-.05
Academic Control	.09	-.01
Parental Expectations		
Father/Male Guardian	.19	.24**
Mother/Female Guardian	.35*	.28*
Parents' Education Level		
Father/Male Guardian	.14	.27*
Mother/Female Guardian	.09	.26*
Academic Achievement	.30*	.41*
Extracurricular Activities	.15	.23**
High School Track	-.01	.08

* $p<.001$, ** $p<.01$,

majority of the independent variables. Most notable were the correlations between the academic self-efficacy measures and College Aspirations. For the African American subgroup, Mathematics correlated with College Aspirations, r = .30, General Subjects correlated with College Aspirations, r = .34, Science/Biology correlated with College Aspirations, r = .41 and Persistence correlated with College Aspirations, r = .40. These were noticeably greater in magnitude than the corresponding correlations for the entire sample which were as follows: Mathematics and College Aspirations, r = .19, General Subjects and College Aspirations, r = .21, Science/Biology and College Aspirations, r = .24, Persistence and College Aspirations, r = .18.

For the Hispanic subgroup, the most notable differences in the bivariate correlations when comparisons were made with the total group occurred between the measures of Parental Expectations and College Aspirations. The correlation between Father's Expectations and College Aspiration for Hispanics was r = .36, compared to a coefficient of .25 for the entire sample. The correlations between Mother's Expectations and College Aspirations for this subgroup and the total sample were r = .46 and r = .29, respectively.

The one notable difference from the total sample in the bivariate correlations for the White subgroup was in the relationship between parents' education level and College Aspirations. Both the correlation coefficient for Fathers' Education Level and College Aspirations, and Mothers' Education Level and College Aspirations were less significant in magnitude for the White subgroup than for the total sample. For Whites a coefficient of .14 was found for Fathers' Education Level, and .09 for Mothers'

Education Level when the two were separately correlated with College Aspirations. Corresponding coefficients of .27 and .21 resulted for the entire sample.

Research question 6: To what extent can an individual's self-efficacy be generalized?

As stated in Chapter 1, there are two parts to this question. The first part is the extent to which feelings of self-efficacy cross behavior domains, and the second reflects the contribution of sub-categories to a generalized notion of the self-efficacy construct. To address both parts of this question, an examination of some of the data analyses previously presented, particularly the correlation analyses and the factor analysis of the academic self-efficacy instrument, is necessary.

If, as Bandura (1977) initially postulated, the construct of self-efficacy is domain specific, the efficacy expressed by an individual to successfully complete work in one academic subject would show little relationship to efficacy the individual would express toward completing work in another academic discipline. Hence, the separate items on the Academic Self-efficacy Scale would be distinct from each other and not empirically verified on a common factor. The factor analysis of the academic self efficacy items conducted in this study, however, produced distinct factors (see Table 4.8). The four-factor solution resulted in the subscales Mathematics which accounted for 18% of the variance, General Subjects accounting for 15.67% of the variance, Science/Biology accounting for 14.14% of the variance and Persistence, accounting for 11.09% of the variance. Of particular significance in these results were those for the General Subjects subscale which demonstrated a common factor crossing academic domains.

The factoring of the self-efficacy scale also provides information regarding the relationship of sub-categories of self-efficacy with a more general notion of the construct. The Mathematics factor linked a students' efficacy to successfully complete an algebra problem with efficacy to learn algebra and efficacy to learn mathematics in general. Likewise, the Science/Biology factor tied efficacy for learning biology with the more general efficacy to learn science.

The information provided by the simple correlation analyses of the thirteen items on the academic self-efficacy scale demonstrated only moderate relationships between the variables. Table 4.23 provides a summary of the correlation coefficients for these items. The correlation coefficients between the mathematics item, the algebra item and the algebra problem were all relatively low with only the mathematics/algebra problem ($r = .08$) correlation demonstrating statistical significance ($p < .01$). The correlation coefficient between the science item and the biology item resulted in the coefficient with the greatest magnitude ($r = .70$). The coefficients for the items which factored together into the General Subjects were all relatively low in magnitude except the coefficient for the correlation between the computer item and the foreign language item which was $r = .65$. The coefficient with the greatest magnitude for the correlations among the persistence items was $r = .19$.

Research Question 7: What is the relationship between self-efficacy beliefs and students' estimates of persistence motivation related to academic tasks?

The factor analysis of the academic self-efficacy items (see Table 4.8) provides information regarding the relationship between the capabilities and the persistence

Table 4.23

Summary of Intercorrelation Coefficients for Items on the Academic Self-Efficacy Scale

Item Number	4	5	6	7	8	9	10	11	12	13	14	15	16
4	–												
5	-.09	–											
6	.19	-.03	–										
7	-.06	.08	.06	–									
8	-.03	-.03	.01	.34	–								
9	.07	.00	.07	.32	.70	–							
10	.16	.02	.15	.31	.46	.56	–						
11	.03	-.02	.06	.40	.15	.16	.17	–					
12	.12	.01	.12	.37	.14	.16	.20	.66	–				
13	-.04	.19	-.07	.34	.03	.05	.08	.23	.23	–			
14	-.09	-.07	.00	.19	.12	.12	.10	.19	.17	.23	–		
15	-.02	.13	-.01	.20	.08	.08	.12	.17	.22	.24	.29	–	
16	-.01	.13	-.06	.33	.11	.12	.15	.24	.22	.59	.20	.23	–

Critical value: r = .07, (p.<.01)

elements of self-efficacy. The four-factor orthogonal solution identified four distinct factors, three of which related to efficacy capabilities beliefs and a fourth relating to persistence. The three persistence items demonstrated relatively high factor loadings (.80, .61 and .47) and explained 11.09% of the variance in the four-factor solution. The bivariate correlation analyses (see Table 4.23) provide additional information regarding the relationships of the persistence items. In these analyses, the correlation coefficient between items 14 and 15 was $r = .29$, between items 14 and 16, $r = .20$ and between items 15 and 16, $r = .23$.

Summary of Analyses of Supplemental Data Set

During the analyses of the data collected for this study, an additional question emerged pertaining to the Cronbach Alpha internal consistency reliability coefficients computed for the locus of control and academic self-efficacy measures. As previously reported, these coefficients were of a particularly low magnitude for the locus of control measures raising concern about the reliability of the data. Although not included with the formal research questions, it must be asked if these low reliability coefficients are indicative of the locus of control scale being inappropriate for the study population or if other problems, such as poor data collection techniques, hamper reliability. To provide information to help determine the source of the reliability problems, a supplemental set of data was collected from 131 ninth-grade students attending a public high school in south-central Louisiana. The data from this set pertaining to the locus of control and academic self-efficacy scales were factor analyzed and the factor structures providing the best statistical and conceptual interpretation of the data were tested for reliability

and correlated with the other study variables. At this point it must be acknowledged that the sample size for these analyses was smaller than desired but the information from this data provides a basis of comparison with the original data set.

Factor Analyses

The factor structure which provided the best interpretation of the data for the locus of control scale was deemed to be the five-factor solution shown in Table F.1 of Appendix F. In this solution 21 of the 23 items demonstrated loadings on factors meeting the criteria established for retention, and the five factors combined to account for 41.42% of the total variance. The four-factor solution was not selected because it had more multiple loadings and accounted for a lower amount of variance (34.86%) than the five-factor solution. Significantly, both the four-factor and the five-factor solutions for this data set differed substantially in structure from the four-factor solution of the data collected from students attending school in the M-DCPS (see Table 4.6).

The factor structure selected for the items on the academic self-efficacy scale was the two-factor solution (see Table F.2 in Appendix F). Factor 1, comprised of 7 items, accounted for 24% of the variance in the solution and Factor 2, comprised of 5 items, accounted for 20.34% of the variance. Item 7, the question asking students to indicate how well the feel they can successfully complete an algebra problem, was excluded from these analyses because a number of students had not yet taken algebra and those currently enrolled in algebra had not yet been taught the information necessary to solve the problem. Although a two-factor solution was selected for this data set as opposed to a four-factor solution selected for the previous (M-DCPS) data

set, the item loading did not differ substantially between the two solutions. Items tended to load with the same items in the factor analyses for both data sets (see Tables 4.7 and 4.8).

Reliability Analyses

Cronbach Alpha internal consistency reliability coefficients were computed for the five locus of control factors and the two academic self-efficacy factors. The results for the locus of control factors revealed the following reliability coefficients: Factor 1, Alpha = .56; Factor 2, Alpha = .20; Factor 3, Alpha = .49, Factor 4, Alpha = -.16; and Factor 5, Alpha = .24. For the academic self-efficacy factors, an Alpha of .75 was computed for Factor 1 and an Alpha of .66 was computed for Factor 2.

The data collected in Louisiana was also tested for reliability using the factored subscales identified in the analyses of the M-DCPS data set. In other words, reliability coefficients were computed for the four locus of control factors and the four self-efficacy factors selected for analyses of the original data set. For both the locus of control and academic self-efficacy subscales, little appreciable difference was demonstrated by these analyses.

Correlation Analyses

Table F.3 in Appendix F reports the Pearson product moment correlations between the study variables utilizing the Louisiana data set. Here again, little appreciable difference was evident between these correlation coefficients and those calculated for the M-DCPS data set, although some coefficients of a greater magnitude for some study variables were noted in the Louisiana sample. Academic Achievement

correlated .19 higher with College Aspirations and .14 higher with College Expectations with the new data set. Also for the new data set, High School Track correlated .40 higher with College Aspirations and .36 higher with College Expectations than with the initial data set. The academic self-efficacy subscales selected to represent the data collected in Louisiana demonstrated correlation coefficients of a greater magnitude with College Aspirations and College Expectations than those computed for the subscales for the M-DCPS data set. Using the Louisiana data set, the first self-efficacy factor correlated with College Aspirations at $r = .55$ and with College Expectations at $r = .53$, and the second self-efficacy factor correlated with College Aspirations at $r = .35$ and with College Expectations at $r = .34$. The M-DCPS data set did not have a correlation coefficient between the self-efficacy subscale and College Aspirations and College Expectations greater than $r = .24$.

Partial Correlation Analyses

As was done with the M-DCPS data set, partial correlation analyses were computed using the Louisiana data set. For these analyses, correlations were computed between the measures of Academic Achievement and the dependent variables while separately controlling for the effects of the academic self-efficacy subscales. The partial correlation procedure statistically controlling for the effects of the first academic self-efficacy measure reduced the correlation coefficient between Academic Achievement and College Aspirations from $r = .52$ to $r = .27$. The same procedure controlling for the effects of the second academic self-efficacy measure reduced the correlation coefficient between the two variables from $r = .52$ to $r = .43$. When the partial correlation

procedure controlling for the effects of the first academic self-efficacy measure was computed for the Academic Achievement and College Expectations variables, the coefficient was reduced from r = .55 to r = .32. The partial correlation procedure statistically controlling for the effects of the second academic self-efficacy measure reduced the correlation coefficient between Academic Achievement and College Expectations from r = .55 to r = .47.

Student Interviews

For the most part, the four students interviewed after completing the questionnaire indicated that they had little difficulty in answering the questions or selecting between responses. The only two items which were mentioned as being confusing were items 50, dealing with parent's expectations for their child's educational attainment and 51, parent's level of education. None of the four indicated that the section containing the locus of control scale was difficult to understand.

Structural Equation Model Analyses

One of the original intents of this study was to use statistical causal modeling procedures (e.g., LISREL, EQS) to develop a more comprehensive picture of factors related to college aspirations and expectations than those currently represented in the extant literature. The bivariate correlation coefficients among the academic efficacy and locus of control variables and the aspirations and expectations variables were rather moderate in magnitude. In addition, the analyses regressing the aspirations and expectations variables on the traditional college choice, efficacy and locus of control variables yielded rather small and varied multiple correlation coefficients. The rather

low reliability of some of the measures used (e.g., locus of control) is believed to have contributed to the relatively weak relationships observed among the variables in the study. These results suggested that subsequent analyses of the data using multivariate procedures such as LISREL would yield little information useful in developing a statistical model to better understand the predicted complex linkages among the study variables.

CHAPTER 5: CONCLUSIONS, DISCUSSION, IMPLICATIONS

This chapter begins with a brief overview of the study, reiterating its importance, purpose and intended contributions. A summary of the study's major findings and conclusions follows, including a discussion of the implications of these findings and conclusions as they related to theory, future research and practical application. The chapter concludes with a summary of the study.

Overview of the Study

This study was designed to explore relationships between several variables believed to relate to the decision process in which adolescents engage relative to pursuing a college education. Psychological factors were examined for their significance during the predisposition phase of the college choice process, the time when adolescents are deciding whether or not they will go to college. Two psychological constructs, locus of control and self-efficacy, were studied to determine a) if they had a direct relationship to students' disposition to attend college and b) if they serve a mediating role for other factors which have been identified by previous research as influencing the college choice process. It was postulated that the two psychological constructs are related to the aspirations and expectations of adolescents toward college, both directly and as mediators of other influences.

The design of the study was initially prompted by a lack of information about the college choice process for members of minority groups. Extensive research has been conducted about college choice, but this research has focused predominately on White students and has not adequately identified factors influencing minority students

to pursue a college education. This study was initiated to provide additional information in this area.

A review of the college choice literature revealed another area of inquiry for the study. Previous research on the subject has generally focused on one of three approaches: viewing the process from an econometric perspective, viewing the process from a sociological perspective, or viewing the process by combining the two perspectives (Hossler et al., 1989). While this line of inquiry has been useful, little attention has been given to the possibility that psychological factors may also be involved in influencing a student to decide to attend college. Cognitive and affective processes which students undergo when considering postsecondary school attendance have gone relatively unexplored. Consequently, an examination of psychological constructs and their relationship to the desire to attend college was undertaken.

The constructs, locus of control and self-efficacy were selected for examination in the study because of linkages to other factors which have, in turn, been linked to college choice, empirical evidence suggesting a connection between these constructs and similar decision processes, and by conceptual analysis. Previous research has identified locus of control and self-efficacy as important correlates of academic achievement (Thomas et al., 1987; Wilhite, 1990; Lent et al. 1986; Mickelson, 1990; Pajares; 1996; Clarke-Stewart and Friedmen, 1983; Seiligmen, 1979; Skinner, Welborn and Connell, 1990); and academic achievement has been linked to college aspirations and expectations (Manski and Wise, 1983; Peters, 1977; Jackson, 1978; Yang, 1981; Carpenter and Fleishmen, 1987; Tuttle, 1981; Hossler and Stage, 1992). Empirically,

self-efficacy and locus of control have been correlated with the career decision process of adolescents (Betz and Hackett, 1981; Taylor and Betz, 1983; Lent et al. 1986; Brooks, 1990; Rotter and Mulry, 1965; Stipek and Weisz).

Conceptually, self-efficacy and locus of control can be linked to the college choice process. Self-efficacy has been clearly identified in the psychology literature as a primary mediator of behavior and behavioral change (Bandura, 1997), influencing whether a behavior will be initiated, the amount of effort expended on the behavior, and the length of time devoted to the behavior. High self-efficacy regarding a behavior will usually lead to an increased frequency of attempting the behavior and greater effort and perseverance. Low self-efficacy, on the other hand, will usually lead to the avoidance of a particular behavior (Bandura, 1977). By attempting behaviors we judge to be within our capabilities to successfully complete and avoiding behaviors where we expect failure, we are prone to make life decisions according to our perceived self-efficacy (Bandura, 1993). This strong conceptual interaction between self-efficacy, behavior and life plans would lead to the conclusion that the decisions of students to attend or not attend college would be significantly influenced by their self perceived abilities to succeed academically.

Locus of control also can be conceptually linked to the college choice process. The extent to which the outcome of an experience is attributed to being the result of one's own actions, rather than caused by external forces, effects the strength of one's expectancy for repeated experiences of a similar nature. No matter what the experience, unless it is perceived to be the result of one's own actions, it will not be significant in

altering the ways in which one sees things and consequently the way one functions. Experiences attributed to external forces will be viewed as beyond an individual's control, and therefore unlikely to reoccur regardless of the individual's efforts. The individual, therefore, is unlikely to expend any amount of significant effort toward making the experience reoccur since such effort is perceived as pointless (Lefcourt, 1982).

Thus, an individual with an external orientation would tend to view life's rewards as being beyond one's personal control and the result of fate, luck or powerful others (Rotter, 1996). Becoming better prepared for life through education would not be seen as significant since one's own resources are not likely to return rewards. An individual with an internal orientation, on the other hand, would view education as beneficial since education increases one's abilities and one's own abilities lead to rewards.

In addition to examining the contribution of psychological variables in the college choice process, this study also explored specific aspects of the self-efficacy construct. The generalizing nature of self-efficacy was investigated and the relationship between self-efficacy capability and persistence elements of the construct were studied.

The initial conceptualization of self-efficacy by Bandura (1966) identified the construct as situation or task specific. In other words, an individual's efficacy is limited to a single endeavor and does not cross behavioral or task domains. Further, an aggregate notion of efficacy is not cumulatively developed from subcategories of efficacy. In academic terms, the efficacy individual's have for their ability to learn a

particular subject does not effect the efficacy they have to learn other subjects. Further, efficacy in specific disciplines, such as algebra and geometry, does not contribute to a general efficacy for a subject such as mathematics. Recent research, however, has acknowledged that efficacy beliefs may, in fact, transfer across activities or settings and may have some cumulative properties (Bandura, 1997). Recognizing that adaptability would become impossible if individuals have to establish a sense of efficacy for each new endeavor, Bandura has identified five processes through which mastery experiences can produce a certain degree of generality in personal efficacy. These are: when similar subskills are present, when competencies co-develop, when self-regulatory or coping skills are involved, when commonalities are cognitively structured across domains and when powerful performance attainments result in transforming experiences.

In his most recent discussion of self-efficacy Bandura (1997) defined perceived self- efficacy in terms of an individual's beliefs in personal capabilities to organize and execute actions required to produce given attainments. He also stated that efficacy beliefs have a variety of predictable psychological and behavioral effects such as how long individuals will persevere in the face of obstacles and failures. According to Bandura, strong self-efficacy beliefs lead to greater perseverance and strengthen the likelihood that activities will be successful and positive performance outcomes will be attained. Thus, self-efficacy theory encompasses the conceptual definition of efficacy as part of the human belief system, as well as the affective and behavioral consequences of efficacy beliefs. Both of these components of self-efficacy theory were addressed in this study.

To operationalize the constructs identified in the study and to examine their relationships, a student questionnaire was developed. The questionnaire contained measures of locus of control, academic self-efficacy, and the five factors identified by previous research as the strongest correlates in the college choice process. Rotter's (1966) Internal-External Locus of Control Scale was used to measure the locus of control construct. The academic section of Bandura's (1989) Children's Self-Efficacy Scale was used to measure self-efficacy, with additional questions developed and incorporated to measure concepts of generalized efficacy and persistence. The five factors associated with college choice in previous research were operationalized using questions from the National Educational Longitudinal Study of 1988 (U.S. Department of Education, Office of Education Research and Improvement, 1992).

The college aspirations and college expectations constructs were used in the study as the primary components of postsecondary educational plan formulation during the predisposition phase of the college choice process. Although similar in concept, these two constructs represent different elements of students' desires to pursue a postsecondary education, and they were treated as such. College aspirations represent the hopes which an individual has to attend college. These hopes may not be realistic, nor is it necessary that the individual actually believes they can be achieved. They are, none the less, the goals the student hopes to attain. College expectations, on the other hand, are more realistic and represent the level of education which an individual expects to pursue upon graduation from high school (Hanson, 1994).

The data for the study were collected from 1076 ninth-grade students attending one of three public high schools in the Miami-Dade County Public School System,

Miami, Florida. Ninth-grade students were chosen since the literature shows that, by this time, most students have made the determination whether or not they will attempt to attend college (Hossler et al., 1989) and such plans remain relatively stable throughout a student's high school career (Schmit and Hossler, 1995). Schools in Miami-Dade County, Florida were selected primarily because the district has a great deal of racial diversity. Since the choice process for members of minority groups was a major focus of the study and the M-DCPS has large numbers of African Americans and Hispanics as well as Whites in attendance, the racial profile of the district matched the objectives of the study.

In addition to drawing specific conclusions about the college choice process, the intent of the study was to identify theoretical, methodological and practical implications which will contribute to the existing knowledge base and will help direct policy decisions. From a theoretical perspective, the information gained in the study added to our understanding of the locus of control and self-efficacy constructs. Methodologically, additional information was gained regarding the measures used to operationalize these constructs. Finally, a better understanding of how the college choice process works allows for the formulation of plans to increase the participation of adolescents in higher education. The section that follows summarizes the major findings and conclusions from the study.

Major Findings and Conclusions

A large number of statistical findings from the exploration of relationships among the study variables and comparisons of subgroups were reported in Chapter 4 of

this study. From these findings conclusions can be made relative to the purpose of the study and the additional areas of inquiry identified during the course of the study. Presented below are the findings and conclusions which are considered most significant for subsequent discussion.

Major Finding Number One

The locus of control construct does not appear to be a significant correlate of college aspirations and expectations. However, the academic self-efficacy construct appears to mediate the linkage between students' academic achievement and their aspirations and expectations.

- Conclusion: The development of future conceptual models addressing factors that influence the processes by which adolescents decide whether or not they will attend college should take into consideration human development theory and the concept of self-efficacy.

Major Finding Number Two

With the exception of academic achievement, the traditionally examined variables associated with the college choice process are not as closely related to students' college aspirations and expectations as the literature has previously suggestsed.

- Conclusion: The results of this study are inconsistent with the conclusions of previous studies, necessitating further analysis of additional factors contributing to the college choice process.

Major Finding Number Three

There is some evidence to suggest that the construct of academic self-efficacy serves a mediating linkage between the traditional variables and college aspirations and expectations. However, there is no evidence to suggest the same relationship exists for the locus of control construct.

- Conclusion: The mechanisms by which adolescents are motivated to go to college are complex, involving many school-related experiences, school environment and family culture, and are interwoven with academic self-efficacy beliefs.

Major Finding Number Four

There is a generalized nature to the construct of self-efficacy where beliefs of efficacy can develop across similar topics within curriculum domains. These efficacious beliefs, on the other hand, do not generalize across dissimilar curriculum domains.

- Conclusion: There are skills within academic domains that are similar and can be developed within school experiences that bind the subskills and potentially academic domains together.

Major Finding Number Five

Perceived self-efficacy beliefs about capabilities to execute academic behaviors and beliefs about academic task persistence can be independently measured and are moderately related within the larger context of self-efficacy theory.

- Conclusion: Any comprehensive theory of human efficacy needs to be able to explain and predict how specific beliefs about personal capabilities are linked with varying strengths to specific affective and behavioral outcomes in differing contexts.

Major Finding Number Six

The locus of control instrument used in the study was unreliable for this group of adolescents.

- Conclusion: The locus of control measure is not appropriate for adolescents in this kind of multi-cultural context which contains students who speak many languages and who come from diverse cultural backgrounds that shape their core personal understandings and beliefs.

Major Finding Number Seven

There were some observed differences among relationships between variables by racial groups.

- Conclusion: There are numerous factors associated with the family/home environment that differ for adolescents from diverse cultures and racial groups. For any model of college choice to be meaningful, it must account for these factors and multi-cultural diversity.

Discussion and Implication of Major Findings

This section provides a discussion of the major findings and conclusions listed above within the context of theoretical concerns, implications for future research and practical application.

Theoretical Implications

The importance of this study to theory lie in two realms. First, are the implications of the information obtained for the conceptual development of a more comprehensive model of college choice and, second, the are contributions to a fuller understanding of the self-efficacy construct and human development theory. These are discussed in turn below.

The College Choice Model

The results of this study suggest that existing models of college choice are deficient in providing an understanding the of the cognitive and affective processes by which adolescents make the determination to attend or not attend college. This decision process not only involves factors such as academic success and parental encouragement but also the deep-seated psychological belief systems framing an individual's self-efficacy. The extent to which the individual believes in his or her ability to successfully complete academic work and the willingness of the individual to persist academically when faced with obstacles and barriers to learning and achievement, is related to one's aspirations and expectations. Both the simple correlations of the efficacy measures with college aspirations and expectations using the data collected in the Miami-Dade County Public Schools and those using the data from the Louisiana sample support the argument that academic self-efficacy plays an important role in the college choice process.

For African Americans, academic self-efficacy as a consideration in the choice process is even more significant than for other racial groups. The correlations of the

efficacy variables with college aspirations and expectations for this subgroup resulted in coefficients which were significantly higher than those computed for the Hispanic and White subgroups. Although beyond the immediate scope of this study, the family structure/environment in the households of the African Americans participating in this study might well contribute to a greater need for this group to develop efficacious beliefs toward academic work in order to develop the desire to attend college. Factors such as single parent households and low socioeconomic status conceivably create an environment lacking in enrichments necessary for the development of strong academic self-efficacy beliefs. This interpretation seems consistent with Bandura's (1997) explanation of factors that contribute to the development of self-efficacy beliefs in home and school environments.

There are suggestions in this study that self-efficacy also plays an indirect role in the process of college choice by mediating the effects of other variables, particularly academic achievement, on the aspirations and expectations of adolescents to attend college. Major reviews of the literature demonstrate well the positive linkage between self-efficacy and academic achievement (Pajares, 1996), and research has demonstrated that performance accomplishments based on mastery experiences are the most significant builder of efficacious beliefs (Bandura, 1997). Conceptually, then, it is logical that positive academic achievement experiences are related to a student's level of academic self-efficacy; and this study and others (Manski and Wise, 1983; Peters, 1977; Jackson, 1978; Yang, 1981; Carpenter and Fleishmen, 1987; Tuttle, 1981; Hossler and Stage, 1992) demonstrate that academic achievement is a correlate of

college aspirations and expectations. The collective results of the partial correlation analyses completed in this study indicate that academic self-efficacy, to some extent, mediates the relationship between academic achievement and college aspirations and expectations.

In addition to rethinking the college choice model to include students' academic self-efficacy beliefs, the model also needs reevaluation to assess the role of traditionally included variables. The results of this study provide no strong indorsement that all five variables contribute significantly to the decision process. The collective results of the correlation analyses of the two data sets collected in this study suggest that academic achievement is the traditional variable most strongly associated with college aspirations and expectations. Although less notable, the parental expectations and parent's level of education variables are also related to students' aspirations and expectations to attend college. The variables, participation in extracurricular activities and high school academic track, were shown to be relatively insignificant factors related to college aspirations and expectations.

Thus the Expanded College Choice Model with Psychological Variables presented in Figure 3 on page 19, may still be a viable conceptual framework for future research. However, it needs further exploration. Future studies with more reliable measurement might shed further light on the complex relationships among the traditional and psychological variables in this conceptual framework.

Self-Efficacy Theory

The results of this study provide information that has several implications for theories of self-efficacy. Of particular note are the contributions which can be made to

a) our understanding of the generalization of self-efficacy beliefs across academic contexts, b) the relationship between persistence and self-efficacy beliefs, and c) the source of efficacy building in different contexts.

In this study there are indications that the self-efficacy construct can be generalized both across domains and within domains as suggested by Bandura (1997). The factor analyses of the M-DCPS data set grouped items into factors which conceptually were related to each other within similar academic disciplines. The three items relating to efficacious beliefs in mathematics were represented by one factor, the two items relating to science were represented by a second factor, a third factor represented the academic subjects outside the math/science disciplines, and the fourth factor consisted of the three academic persistence items. Bandura (1997) suggests that mastery experiences can produce some degree of generalized self-efficacy beliefs and that the primary mastery experience is the presence of similar sub-skills. Certainly similar sub-skills, such as adding, subtracting, multiplying, dividing, etc. would be needed to do general mathematics, algebra, and specific algebra problems. Likewise, skills inherent in both general science and biology can be identified. In this study the four subjects represented by the General Subjects factor were less closely related than the subjects in the Mathematics and Science/Biology factors, yet they had enough commonality that similar sub-skills could be identified. English grammar, reading and writing, and foreign languages were all based on language skills and the fourth item in this factor, computers, also had a strong, yet not so obvious connection, to these skills. At the ninth- grade level, the primary focus of computer training is on teaching

keyboarding skills and the use of the computer as a word processing instrument. These skills, it can be argued are, in fact, language skills. Thus, the academic domains which factored together in this study have similar sub-skills, which supports Bandura's premise.

There is also evidence from the results of this study that self-efficacy beliefs can be generalized within academic domains that have cumulative properties where sub-categories contribute to a more general notion of the construct. This was demonstrated, for example, by the factor analyses of the academic self-efficacy items with the grouping of the algebra problem with algebra and mathematics in general, and the factor grouping of biology with general science. These findings are consistent with current views about how efficacy beliefs develop within and across domains (Bandura, 1997). Thus, the efficacy one feels in one's ability to do the algebra problem contributes to the efficacy one feels toward algebra, and both of these contribute to the efficacy one feels towards doing mathematics. Likewise, the efficacy one has toward biology contributes toward a more general notion of efficacy about science capabilities. The correlation analyses also supported this explanation with biology and science having a significantly high coefficient. On the other hand, the three items comprising the Mathematics factor did not correlate highly with each other.

These results of this study fit well with the position taken by Bandura (1997) regarding the generality of efficacy beliefs. He cautions that a failure to recognize the transfer of efficacy beliefs across activities or settings would constrict people to having to establish their sense of efficacy anew with each activity attempted, acknowledging no

ability to adapt. On the other hand, a universal embracing of efficacy transferal would undermine the conceptual definition of the construct and be contrary to the genesis of efficacy beliefs. Efficacy beliefs are structured by experience with specific experiences contributing to the development of specific efficacious beliefs. When experiences contribute to the development of multiple efficacy beliefs, then a generalized notion of efficacy can be identified which crosses capabilities and performance domains surrounding those beliefs.

The results of this study also provide some insights into the measurement of self- efficacy capabilities on the one hand, and the measurement of beliefs about possible consequences of efficacy strengths on the other hand. The factor analysis results showed that these are two elements of a larger efficacy theory and can be measured independently. However, the relationships between these elements of efficacy are positive in direction (as predicted by the theory), but only moderate in magnitude. The items from the survey in this study taken from Bandura's (1989) Children's Self-Efficacy Scale (items 4, 5, 6, 8, 9, 10, 11, 12 and 13 on the Student Questionnaire) all related to the perceived capabilities element of self-efficacy. Items 14-16 measured students' beliefs about the predicted consequences of various strengths in efficacy beliefs (i.e., how long and hard students work when trying to complete a difficult mathematics problem), and these items collectively defined an efficacy academic task motivation/persistence construct.

Another contribution of this study to efficacy theory is a better understanding of the dynamics of efficacy development within diverse populations. Considered

collectively, the results of this study demonstrated that a positive (though moderately strong) relationship exists between academic self-efficacy and college aspirations and expectations. When data from the sample were partitioned by race, however, the importance of academic self-efficacy was significantly greater for the African American subgroup than for the Hispanic or White subgroups. For the African American subgroup, the measures of academic self-efficacy were the variables most strongly correlated with College Aspirations. These results suggest that academic self-efficacy beliefs may play a more important role in academic task effort and persistence for African American adolescents than for Hispanic or White adolescents. This finding seems consistent with recent large-scale reviews of research on factors contributing to school learning that point out the importance of classroom and home learning environments to strengthening academic task engagement and subsequent learning, particularly for disadvantaged students (Wang, Haertel, and Walberg, 1993). It may be that the contribution of within school learning experiences, to the development of academic self-efficacy beliefs that strengthen task persistence, is particularly important for students from poor families, and from home environments with single and/or minimally educated parents.

Locus of Control Theory

It is difficult from the results of this study to develop an understanding of the role that locus of control might well play in the development of adolescents' aspirations and expectations to attend college. The unreliability of the locus of control data limits any strong interpretation of the findings. Language difficulties were noted as one

possible, important source of unreliability for the locus of contol data. It seems rather intuitive that adolescents with an external locus of control, developed over many life experiences, should have lower college aspirations and expectations than adolescents with an internal locus of control. However, a closer examination of the meaning of locus of control in view of the self-efficacy construct, may counter such intuitions.

The identification of academic self-efficacy rather than locus of control as a factor in the college choice process is consistent with the conceptual understanding of these constructs. Both deal with personal belief systems, however, locus of control is a more global concept reflecting beliefs about causal attributions for behavior (Lefcourt, 1982). This global nature does not allow for significant distinctions to be made in the orientation of an individual at the microanalytic level. The degree to which an individual is internal or external in orientation, does not vary from one domain to the next. Beliefs such as *I control my own destiny*, *Much of what happens in life is the result of luck* or *You can't fight City Hall* all reflect universal beliefs of control. Thus, locus of control would not be expected to distinguish between the beliefs of control an individual has toward going to college from beliefs relative to pursuing other career paths. One would consider to have similar levels of control in both circumstances. Locus of control, as a motivator of human behavior, should act as an inducement or detractor of actions across domains.

Self efficacy, on the other hand, is microanalytic and more situation or task specific than locus of control. Thus, distinctions between an individual's academic self-efficacy might vary considerably from one discipline to the next. It would, therefore, be

expected that the efficacy beliefs one has for academics might differ from one's efficacy beliefs in other areas, thereby delineating clear distinctions in choice processes. For the college choice process, a student's academic self-efficacy would provide information necessary to making decisions, whereas, locus of control would not.

Recently Bandura (1997) provided conceptual and empirical differentiation between the efficacy and locus of control constructs. He argues that "beliefs about whether one can produce certain actions (perceived self-efficacy) cannot, by any stretch of the imagination, be considered the same as beliefs about whether actions affect outcomes (locus of control)" p.20.

Implications for Future Research

The first significant implication which this study suggests for future research deals with the measures used to operationalize the constructs locus of control and academic self-efficacy. The locus of control scale proved to have considerable shortcomings and the academic self-efficacy scale appears to need of further development and refinement.

Locus of Control Scale

From the study findings, it was concluded that the locus of control measure is not appropriate for the population used in the study and may be deficient in adequately measuring the construct for other populations as well. The locus of control reliability statistics for the M-DCPS sample were so low that the Student Questionnaire was administered to a hold out sample in Louisiana, to determine if faulty data collection procedures might have contributed to the low reliability of the measure. This researcher

personally administered the instrument during the collection of the second data set. Since the reliability coefficients were again low, it was concluded that the locus of control scale is unreliable for students like those in this study.

Prior to selecting the Internal-External Locus of Control Scale as the measurement for the construct, a review of the scale's reliability was completed. A number of studies with varied populations reported reliability coefficients ranging from $r = .69$ to $r = .78$. These studies, however, involved samples of high school seniors, college students, and adults (incarcerated prisoners) and not ninth-grade students from diverse racial backgrounds.

There appear to be two problems with the locus of control measure. First, the dichotomous format does not adequately differentiate between sources of external control and it can lead to an internal response when actually an external response reflects the beliefs of the respondent. There are at least two distinct dimensions along which respondents may differ in causal attributions (Collins, 1974). They may differ in the extent to which the consequences of behavior can be attributed to chance occurrences or luck, or they may differ in the extent to which consequences can be attributed to the influence of powerful others. Item 21 on the questionnaire, for example, asks students to select between the following two statements: "The idea that teachers are unfair to students is nonsense." and "Most students don't realize to extent to which their grades are influenced by accidental happenings." A respondent with an external orientation derived from a strong sense of fatalism would probably select the second statement since it reflects a belief that luck plays a key role in the assignment of

grades. A respondent, however, with an external orientation based on a sense that powerful others are directing the events of one's life would probably not believe that luck or fate played a role in the assignment of grades. Thus the second statement might be selected because of a stronger belief that teachers exert a dominant controlling influence. This question and others as well appear to mix the dimensions of external control, which could lead to responses which do not reflect the locus of control beliefs of the respondents. This disparity, in all likelihood, contributed significantly to the low reliability coefficients computed for the measures of locus of control in this study.

The second difficulty with the locus of control measure relates to the age of the study participants and their diverse backgrounds. Although the Louisiana students who were interviewed after completing the questionnaire did not indicate difficulties with this measure, these students all resided in English speaking households. The sample from the M-DCPS, however, was much more diverse with many of participants coming from households where Spanish is spoken. This language difference, coupled with inherent cultural differences in the meaning of language and the interpretation of life events, more than likely made the instrument difficult for many of the participants to understand. The relatively young age of the sample may also well have had a negative effect on students' comprehension of the questionnaire.

Future studies of young adolescents like those in this study should use other measures of locus of control than the standard Rotter (1966) scale. A number of studies have modified the forced choice, dichotomous format of the Rotter scale into a Likert-type scale where respondents are asked to rate their level of agreement with each

individual statement contained in the scale (Zuckerman and Gerbasi, 1997; Collins, 1974). This modification eliminates the potential mixing of dimensions for an external orientation. However, it does not address the potential problems of written language being misunderstood, giving consideration to the age and ethnicity of the respondents.

Another scale which deserves consideration for populations similar to the one used in this study is the Nowicki-Strickland Locus of Control Scale (Nowicki & Strickland, 1973). This scale was specifically written to be readable at the fifth-grade level yet is also considered appropriate for older students. Internal consistency reliabilies for the scale were reported by Nowicki and Strickland to be $r = .63$ for grades 3-5, $r = .68$ for grades 6-8, $r = .74$ for grades 9-11, and $r = .81$ for grade 12. The lower readability level of this scale when compared to the Rotter (1966) scale, would predictably result in greater reliability with a diverse sample of adolescents like those that participated in this study. Increased reliability of measurement of the locus of control construct would, in turn, lead to better estimates of the true relationship between locus of control and adolescents' aspirations and expectations to attend college.

Academic Self-Efficacy Scale

The academic self-efficacy scale used in this study combined the academic section of Bandura's (1989) Children's Self-Efficacy Scale with items developed to test the academic persistence of the respondents. Initially, there was some concern that the items from Bandura's scale somewhat lacked face validity, and conceptually did not address the most important factors leading to efficacy development. Asking students how well they learn various academic subjects may not accurately identify efficacious

beliefs. Students who indicate they can learn a subject well may do so because they receive good grades in the subject, because they know the teacher provides support or because they truly understand the material and believe they can personally learn and apply it. Bandura acknowledges that saying that one is capable of doing something is not necessarily self-convincing or the same as believing in one's ability to actually accomplish the task or behavior (1997). Similarly, attestations that one can do something are not a direct measure of the strength of efficacy beliefs. Alternatively, one might ask respondents how strongly they believe in their capabilities to do something.

To address this apparent shortcoming and to add additional depth to the measurement of elements of self-efficacy beliefs theory, three items reflecting beliefs about task persistence were added to the measurement system. Bandura writes, "the stronger the sense of personal efficacy...the greater the perseverance and the higher the likelihood that the chosen activity will be performed successfully" (1997, p.43). This study identified persistence to be a separate sub-construct within the conceptual framework of self-efficacy theory. Thus, adding questions about students' willingness to continue in an endeavor when faced with obstacles and/or failure, was viewed as providing a more global view of self efficacy beliefs relative to the total strength of efficacy and its potential behavioral consequences.

Factor analyses of the total set of self-efficacy beliefs items identified three academic self-efficacy components from the pool of items used that were originally developed by Bandura (1989). Alpha reliabilities for these three sub-constructs were .63, .79 and .80. However, the efficacy persistence sub-construct Alpha reliability was

rather low (.43). Thus, in this study, both measures of self-efficacy capability and academic task perseverance were of concern. This latter measure appears to need revision to enhance the reliability of measurement.

Additionally, and following this logic, future studies might be well advised to also include measurement items tapping the efficacy theory sub-construct of outcome expectation. Thus, a more comprehensive measurement system for future research could include items addressing self-efficacy beliefs about capabilities to organize and execute corses of action, efficacy outcome expectations, and task persistence. This approach to the measurement of elements of self-efficacy theory can seemingly provide more breadth and depth of theoretical understanding than a singular focus on self-efficacy capabilities beliefs. The vast majority of studies of self-efficacy beliefs in the extant literature focus only on the measurement of the self-efficacy capabilities construct as the key element of the larger theory.

Culturally Sensitive Instrument Design

Another facet of instrument design which this study identifies, is the need to develop measures of locus of control and academic self-efficacy which are culturally sensitive. Asking ninth-grade students living in a Spanish speaking household or a low socioeconomic neighborhood to select between locus of control alternatives relating to politics or world affairs and expecting reliable results, is problematic. For these individuals, other cultural or experiential factors may determine their levels of perceived control such as strong religious beliefs or fear of a racially biased police force.

Likewise, the academic self-efficacy measures concentrate on efficacy beliefs which are most closely associated with one aspect of efficacy development, enactive mastery experiences. Students were asked "How well can you learn...?" For members of minority groups who may not have experienced the same levels of academic accomplishments as White adolescents, other determinates of efficacy may be more appropriate. For these individuals, the modeling of others or verbal encouragement may have a more significant role in enhancing efficacy beliefs.

There is, therefore, a great need for further research into the design of measures of these psychological constructs for ethnically and racially diverse populations. To assume that the same instruments used for White, middle-class populations will adequately operationalize these constructs seems rather short-sighted. It may well be that measures of locus of control and self-efficacy have to be individually and uniquely developed for each sample population.

Development of Self-Efficacy Beliefs

Bandura (1997) elaborates four essential factors that contribute to the development of individual's self-efficacy beliefs: a) enactive mastery experiences, b) vicarious experiences, c) verbal persuasion and d) psychological and affective states. Enactive mastery experiences are typically described as the most potent source for the development of self-efficacy beliefs. However, the literature is relatively silent as regards the strength and contributions of these four factors to the development of self-efficacy in different contexts. This raises a considerable number of questions that might be answered through future research. For example, which of these factors is the most

potent source for the development of self-efficacy strengths in the home environment.... in the classroom environment? Do these factors contribute differently to self-efficacy beliefs for students who vary in terms of abilities, developmental levels, socioeconomic status, etc.? Are there combinations of these factors that build greater efficacy strengths in some performance domains than in others (e.g., athletics vs. academics)?

Development of More Construct Valid Measures

Additionally, there is a need to develop more comprehensive self-efficacy measures around the theoretical assumptions underlying the construct. For example, Bandura (1997) makes the argument that self-efficacy measures would ideally be structured within performance domains, with items addressing efficacy beliefs about tasks varying in graded difficulties within these domains. Such measures would yield data having more sensitivity to variations in self-efficacy, and probably demonstrate greater reliability than those used in this study. As well, these kinds of measures would better operationalize the theoretical conceptualization of the self-efficacy construct and might better correlate with a variety of potential criterion measures, such as the college aspirations and expectations measures used in this study. Extending the self-efficacy beliefs line of inquiry, with better measurement systems, can also lead to the development of a more robust nomological net (Cronbach & Meehl, 1955) to support self-efficacy theory.

Replication of the Study

It should be recognized that the findings of this study are far from conclusive and that additional research is needed into the role of psychological variables in the

college choice process. Because of the low reliability coefficients calculated for some of the study variables, caution should be exercised to avoid broad generalizations based upon the study results. Further, the sample used in the study included populations with unique cultural identities which make the generalizing of the results to other populations difficult. For example, 41.8 percent of the respondents indicated their race to be Hispanic yet this segment only make up 9% of the total population of the country (Bureau of the Censes, 1994). The finding for the Hispanic subgroup should probably not be generalized to Hispanics in other areas of the country. The Miami sample was comprised largely of individuals from Cuban, Puerto Rican or Haitian backgrounds. It would be erroneous to generalize the findings from this group to other Hispanic students in different areas of the country such as Chicanos in California or Mexican Americans in New Mexico, because significant cultural differences exist within the broad Hispanic racial category. Thus, home learning environments and sources of efficacy development related to college aspirations and expectations might vary considerably among these different Hispanic groups.

Practical Implications

There are numerous implications for practice which the results of this study suggest. These implications are primarily centered around strategies which can be applied in the school setting but are not only limited to the classroom. A holistic approach should be employed which encompasses the entire learning environment including strategies involving parents and/or guardians.

Teachers

It is important that teachers recognize the importance of efficacy beliefs and are sensitive to individual differences among students. It may not be enough to develop classroom strategies which unilaterally build adolescents' academic self-efficacies. The development of mastery experiences may be the most powerful determinant of efficacy and should be an important component of any approach, but other components must also be employed. Some students may be more inclined to develop positive efficacious beliefs through modeling (vicarious experiences) or encouragement (verbal persuasion).

The development of mastery experiences, however, is a corner stone of self-efficacy development and should be carefully addressed. It is unrealistic to expect adolescents to develop positive beliefs of academic self-efficacy if presented with tasks which are so difficult that a high potential for failure exists. In fact, repeated failures have a deleterious effect on building self-efficacy (Bandura, 1997). Pedagogically, learning and efficacy building should take place simultaneously using small incremental steps allowing all students to progress. This of course, raises significant issues about the proper pacing of educational development given students with varying degrees of academic attainment and diverse intellectual capabilities, which are beyond the scope of this study. Thus, the building of academic self-efficacy is an important element of pedagogy and a significant concern in the development of optimally functioning school and classroom environments for students.

The interplay of persistence, as recognized by Bandura (1997) and identified in this study as a important behavioral effect of efficacy beliefs, also deserves mention in terms of practical application. Not only is persistence an outcome of self-efficacy beliefs, it also reciprocally can produce the highest, strongest and most generalized increases in efficacy (Bandura, 1982). When an individual is able to master a difficult situation, the influences in creating strong self-percepts of efficacy are greater than those produced by persuasion or vicarious experiences. This seems particularly important as we address ways to develop efficacious beliefs in our youth. Recognizing that persistence resulting in achievement positively impacts an individual's self-efficacy greater than any other source, strategies can be developed to strengthen students' academic self-efficacy beliefs in our schools.

It should further be noted that school faculty and staff need training about efficacy issues for it cannot be assumed that school officials are knowledgeable in this area. This study demonstrates that self-efficacy is a very complex, multifaceted construct which continues to reach conceptual maturity. Although it is not necessary for teachers to be thoroughly familiar with the literature regarding self-efficacy, a rudimentary working knowledge of efficacy, built upon a sound theoretical base is needed. Many erroneous conceptions surround the construct (e.g. that it is equivalent to self-concept or self-esteem) which can easily lead to well-intentioned, but misguided practical applications. In-service education for teachers and school leadership personnel and the careful development and monitoring of efficacy building strategies by knowledgeable practitioners are important pedagogical concerns.

School Environment

The environment of the school, both within the confines of the classroom and throughout the halls must also support self-efficacy development. One fundamental goal of education reflecting efficacy theory is to equip students with self-regulatory capabilities that enable them to educate themselves. "Self-regulation encompasses skills for planning, organizing and managing instructional activities; enlisting resources; regulating one's own motivation; and applying metacognitive skills to evaluate the adequacy of one's knowledge and strategies." (Bandura, 1997, p. 175) A strong belief in self-regulatory efficacy contributes to success in academic subject matter by building a sense of cognitive efficacy and raising academic aspirations (Zimmerman, Bandura and Martinez-Pons, 1992).

Home Environment

Inclusion of parents or guardians in efficacy building is also of critical importance because the home environment may be more significant in the development of positive efficacious beliefs than experiences in the school setting (Wang, Haertel and Walberg, 1993). Preschool children, for instance, who have been taught how their actions can be causative have been shown to be more cognitively competent in childhood than those who have not had the benefit of early mastery experiences (Ramey et al., 1982). The development of self-efficacy at home may be particularly significant for children growing up in less affluent environments. Ramsey and Ramsey (1992) report that intensive preschool programs that provide rich mastery experiences permanently raise the intellectual and academic attainments of children from

economically impoverished families. The dynamics of self-efficacy building in the home environment also can result in a process of reciprocal causation where parents work with children whose efficacy increases, causing the parents in turn to have greater beliefs of parenting efficacy, which in turn leads to increased effort on the part of the parents to work with their children (Bradley, Caldwell and Elardo, 1979).

Incorporating parents or guardians into the efficacy building process may seem like a monumental challenge especially in single parent, non-English speaking or low socioeconomic households. Programs exist, however, which must be utilized. The Parents As Teachers program, for instance, is a national program targeted at low income, single parents. It is designed to instruct parents on activities in which they can engage with their preschool children to develop early cognitive processes. The activities themselves are mastery experiences, and built into parent-child interactions are modeling scenarios and effusive positive reinforcements. Each of these elements is consistent with factors important for strengthening self-efficacy beliefs (Bandura, 1997).

In discussing these practical application no mention has yet been made regarding the development of college aspirations and expectations. Attention has been focused instead on the building of self-efficacy holistically within the school and home environments. Although by no means conclusive, the results of this study indicate that academic self-efficacy is positively related to college aspirations and expectations of adolescents. It is therefore, appropriate that the previous discussion take place regarding the development of academic self-efficacy. As this study suggests, if we are better able to develop the academic self-efficacy beliefs in our youth, it is likely we will

be able increase their aspirations and expectations to attend college. This seems a worthwhile endeavor for parents and educators alike, particularly for those working with minority and disadvantaged youth in need of strengthening academic self-efficacy beliefs.

Chapter Summary

Following a general overview of the study, Chapter 5 presented a summary and discussion of the study's major findings and conclusion. The discussion included implications for theory, future research and practical application.

Dissertation Summary

This document describes a study of 1076 ninth-grade students attending public high schools in an urban environment in the southeastern United States. The study described was designed to determine factors which motivate adolescents to attend college. Previous research had developed models of college choice which incorporated econometric and sociological factors. The conceptual framework to guiding this study identified two additional factors in the process, the psychological constructs of locus of control and academic self-efficacy. These constructs were posited to be linked to adolescents' aspirations and expectations to attend college, as well as, playing a mediating role between traditionally identified college choice variables, and college aspirations and expectations. Particular attention was given to members of minority groups since previous research has not adequately explained the processes by which members of these groups are motivated to attend or not attend college.

A variety of statistical procedures was used to derive information regarding the relationships between study variables. These procedures included a) a factor analyses of the locus of control and academic self-efficacy instrument items; b) Cronbach Alpha internal consistency reliability analyses of instrument scores and subscales; and c) correlation analyses of study variables including bivariate correlations, multiple regressions and partial correlations.

The major findings of the study showed that: a) locus of control is not a significant factor in the college choice process although low reliability in the data made this finding rather inconclusive; b) there is evidence that academic self-efficacy is both directly related to college aspirations and expectations and mediates linkages between academic achievement and aspirations and expectations; and c) models of college choice are different for members of minority groups (African Americans and Hispanics) than for White students. The study also provided additional empirical and conceptual information about the academic self-efficacy construct.

These findings were synthesized in terms of a set of major findings and conclusions and were discussed in view of their implications for theory, future research and practical application.

REFRENCES

Abrahamson, D. Schuldermann, S. and Schuldermann, E. (1973). Replication of dimensions of locus of control. Journal of Consulting and Clinical Psychology, 41, 320.

Adkins, D. L. (1975). The great American degree machine. New York: McGraw-Hill.

Alexander, K. L., Eckland, B. K. and Griffin, L. J. (1975). The Wisconsin model of socioeconomic achievement: A replication. American Journal of Sociology 81, (2), 325-42.

Alwin, D. and Otto, L. (1977). High school context effects on aspirations. Sociology of Education, 50, 259-73.

Anderson, C., Bowman, M. and Tinto, V. (1972). Where colleges are and who attends. New York: McGraw-Hill.

Astin, A. (1980). The impact of student financial aid programs on student college choice. Washington, DC: Office of Planning.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 84, (2), 191-215.

Bandura, A. (1978). The self system in reciprocal determinism. American Psychologist, 344-358.

Bandura, A. (1982). Self-efficacy mechanism in human agency. American psychologist, 37, (2), 122-147.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1989). Children's self-efficacy scale. Unpublished Manuscript.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. Educational Psychologist, 28, (2), 117-148.

Bandura, A. (1997). Self-efficacy: The exercise of control. New York: Freeman.

Bandura, A. and Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. Journal of Personality and Social Psychology, 41, 586-598.

Bateman, M. and Hossler, D. (1996). Exploring the Development of Postsecondary Education Plans Among African American and White Students. College and University, 72, (1), 2-9.

Bateman, M. and Kennedy, E. (1997). Male African Americans, Single Parent Homes, and Educational Plans: Implications for Educators and Policymakers. Journal of Education for Students Placed at Risk, 2, (3), p.229-50.

Baum, A., Aiello, J. R. and Calesnick, L. E. (1978). Crowding and personal control: social density and the development of learned helplessness. Journal of Personality and Social Psychology, 36, 1000-1011.

Beasley, S. And Sease, W. (1974). Using biographical data as a predictor of academic success for black university students. Journal of College Student Personnel, 15, 201-206.

Benham, J. M. (1995). Fostering self-motivation behavior, personal responsibility and internal locus of control in school settings. (ERIC Document Reproduction Service No. ED 386 621)

Betz, N. E. and Hackett, G. (1981). The relationship of career-related self-efficacy expectations to perceived career options in college women and men. Journal of Counseling Psychology, 23, 399-410.

Bird, C. (1975). The case against college. New York: David McKay.

Bishop, J. (1977). The effects of public policy on the demand for higher education. Journal of Human Resources, 5, (4), 285-307.

Blackman, S. (1962). Some factors affecting the perception of events as chance determined. Journal of Psychology, 54, 197-202.

Blau, P. and Duncan, O. (1967). The American occupational structure. New York: Wiley.

Blechman, E. A. and Dannemiller, E. A. (1976). Effects on performance of perceived control over noxious noise. Journal of Consulting and Clinical Psychology, 44, 601-607.

Bloom, B. S. et al. (1956). Taxonomy of educational objectives. Handbook I: Cognitive domain. New York: Longmans, Green.

Bowers, K. S. (1973). Situationalism in psychology: An analysis and critique. Psychological Review, 80, 307-336.

Bradley, R. H., Caldwell, B. M. and Elardo, R. (1979). Home environment and cognitive development in the first two years: A cross-lagged panel analysis. Developmental Psychology, 15, 246-250.

Brooks, L. (1990). Recent developments in theory building. In D. Brown, L. Brooks, & Associates (Eds.), Career Choice and Development: Applying Contemporary Theories to Practice, (pp. 364-394). San Francisco, Jossey-Bass.

Brown, K. G. (1982). Postsecondary plans of high school seniors in 1972 and 1980: Implications for student quality. Paper presented at the AIR Forum, Denver, May.

Bureau of the Census. (1994). Statistical abstract of the United States. Washington, DC: United States Department of Commerce.

Campbell, R. and Siegal, B. (1967). The demand for higher education in the United States, 1919-1964. American Economic Review, 57, 453-99.

Cardi, M. (1962). An examination of internal versus external control in relation to academic failures. Unpublished master's thesis, Ohio State University, Columbus.

Carpenter, P. and Fleishman, J. (1987). Linking intentions and behavior: Australian students' college plans and college attendance. American Educational Research Journal, 24, (1), 79-105.

Chapman, R. C. (1979). Pricing policy and the college choice process. Research in Higher Education, 10, 37-57.

Chressanthis, G. A. (1986). The impact of tuition rate changes on college graduate head counts and credit hours over time and a case study. Economics of Education, 5, (2), 205-17.

Chronical of Higher Education, (1978). 16 5, November 13, 8.

Chronicle of Higher Education, (1995). 42 1, September 1, 14.

Chronicle of Higher Education, (1999). Almanac.

Cibik, M. A. (1982). College information needs. College and University, 57, 97-102.

Clark, B. (1987). The academic life. Princeton, NJ: The Carnegie Foundation for the Advancement of Teaching.

Clark, K. B. and Plotkin, L. (1964). The Negro student at integrated colleges. New York: National Scholarship Service and Fund for Negro Students.

Clarke-Stewart, A. and Friedman, S. (1983). Cognitive development. Child development: Infancy through adolescence. New York: John Wiley and Sons.

Cohn, E. and Geske, T. G. (1990). The Economics of Education, 3rd Ed. Oxford: Pergamon Press.

Coleman, J. S. (1966). Peer culture and education in modern society. In T. M. Newcomb and E. K. Wilson (eds.) College peer groups: Problems and prospects for research. Chicago: Aldine.

Coleman, J., Campbell, E., Hobson, C., McPartland, J., Mood, A., Weinfeld, F., and York, R. (1966). Equality of educational opportunity. Washington, DC: U.S. Government Printing Office.

Collins, B. E. (1974). Four separate components of the Rotter I-E scale: Belief in a difficult world, a just world, a predictable world and a politically responsive world. Journal of Social Psychology, 29, 381-391.

Conklin, M. and Dailey, A. (1981). Does consistency of parental encouragement matter for secondary students? Sociology of Education, 54, 254-62.

Corazzini, A. J., Dugan, D. J. and Grabowski, H. G. (1972). Determinants and distribution aspects of enrollment in U.S. higher education. Journal of Human Resources, 7, 39-59.

Crandall, V. C., Katkovsky, W. and Crandall, V. J. (1965). Children's belief in their own control of reinforcements in intellectual-academic achievement situations. Child Development, 36, 91-109.

Crichlow, W. (1986). Responses to Afro-American students to processes of education in an urban high school. Paper presented at the meetings of American Educational Research Association, San Francisco, CA.

Cronbach, L. J. and Meehl, P. E. (1955). Construct validity in psychological tests. American Psychologist, 52, 281-302.

Crowne, D. P. and Marlowe, D. (1964). The Approval Motive. New York: Wiley.

Dahl, D. W. (1982). College attendance and institutional choice. Results from the Kentucky longitudinal study. Paper presented at the Annual Forum of the Association of Institutional Research, Denver, June.

Dillingham, G. (1980). The value stretch: An empirical test. Sociology and Social Research, 64, 121-137.

Ekstrom, R. B. (1985). A descriptive study of public high school guidance: Report to the Commission for the Study of Precollegiate Guidance and Counseling. Princeton, NJ: Eductional Testing Service.

Elsworth, G., Day, N., Harworth, R. and Andrews, J. (1982). From high school to tertiary study: Transition to college and university in Victoria. Hawthorn, Victoria: Australian Council on Education.

Endler, N. S. and Magnusson, D. (1975). Interactional psychology and personality. Washington, DC: Hemisphere.

Ewart, C. K., Setwart, K. J., Gillilan, R. E. and Kelemen, M. H. (1986). Self-efficacy mediates strength gains during circuit weight training in men with coronary artery disease. Medicine and Science in Sports and Exercise, 18, 531-540.

Falsey, B. And Heyns, B. (1984). The college channel: Private and public schools reconsidered. Sociology of Education, 57, 111-22.

Franklin, R. D. (1963). Youth's expectations about internal versus external control reinforcements related to N variables. Dissertation Abstracts, 24, 1684.

Freeman, R. (1976). The over-educated America. New York: Academic Press.

Fuller, W., Manski, C. and Wise, D. (1982). New evidence on the economic determinants of postsecondary schooling choices. Journal of Human Resources, 17, (4), 472-98.

Gall, M., Borg, W. and Gall, J. (1996). Educational research: An introduction (6th ed.). White Plains, NY: Longman.

Garza, R. T. and Widlak, F. (1977). The valididy of locus of control dimensions for Chicano populations. Journal of Personality Assessment, 41, 635-643.

Gibbs, J. T. (1973). Black students/white university: Different expectations. Personnel and Guidance Journal, 51, 463-469.

Gilmour, J., Jr., Spiro, L. M. and Dolich, I. S. (1978). How high school students select a college. Philadelphia: Pennsylvania State University.

Glass, D. C., Reim, B, and Singer, J. E. (1971). Behavioral consequences of adaptation to controllable and uncontrollable noise. Journal of Experimental Social Psychology, 7, 244-257.

Glass, D. C., Singer, J. E., and Friedman, L. N. (1969). Psychic cost of adaptation to an environmental stressor. Journal of Personality and social Psychology, 12, 200-210.

Glass, D. C. and Singer, J. E. (1972). Urban stress. New York: Academic Press.

Golin, S. (1974). The effects of stress on the performance of normal and high anxious subjects under chance and skill conditions. Journal of Abnormal Psychology, 83, 466-472.

Graavetter, F. And Wallnau, L. (1992). Statistics for the behavioral sciences (3rd ed.). St. Paul MN: West Publishing Company.

Guralnick, M. J. (1990). Social competence and early intervention. Journal of Early Intervention, 14, (1), 3-14.

Gurin, P., Gurin, G., Lao, R. C. and Beatie, M. (1969). Internal-external control in the motivational dynamics of Negro youth. Journal of Social Issues, 25, 29-53.

Gurin, P., Gurin, G., and Morrison, B. M. (1978). Personal and ideological aspects of internal and external control. Social Psychology, 41, 275-296.

Hanson, S. L. (1994). Lost talent: Unrealized educational aspirations and expectations among U.S. youths. Sociology of Education, 67, 159-183.

Hanson, K. and Litten, L. (1982). Mapping the road to academia: A review of research on women, men and the college selection process. In P. Perun (ed.) The Undergraduate Woman: Issues in Education. Lexington, MA: Lexington Books.

Hauser, R. and Anderson, D. (1991). Post-high school plans and aspirations of Black and White high school seniors: 1976-86. Sociology of Education, 64, 263-77.

Hauser, R. and Featherman, D. (1977). The process of stratification treads and analysis. New York: Academic Press.

Hearn, J. (1984). The relative roles of academic ascribed and socioeconomic characteristics in college destinations. Sociology of Education, 57, 22-30.

Hilton, T. L. (1982). Persistence in higher education. New York: The College Board.

Hossler, D. (1984). Enrollment management: an integrated approach. New York: The College Board.

Hossler, D. and Gallagher, K. (1987). Studying student college choice: A three-phase model and the implications for policy-makers. College and University, 2, (3), 207-21.

Hossler, D. and Maple, S. (1993, Spring). Being undecided about postsecondary education. The Review of Higher Education, 287-307.

Hossler, D. and Stage, F. (1987). An analysis of student and parent data from the pilot year of Indiana college placement and assessment center. Bloomington: Indiana College Placement and Assessment Center.

Hossler, D. and Stage, F. (1992). Family and high school experience influences on the postsecondary educational plans of ninth-grade students. American Educational Research Journal, 29, (2), 425-51.

Hossler, D., Braxton, J. and Coopersmith, G. (1989). Higher education: Handbook of theory and research. New York: Agatha Press.

Jackson, G. A. (1978). Financial aid and student enrollment. Journal of Higher Education, 49, 548-74.

Jackson, G. A. (1982). Public efficiency and private choice in higher education. Educational Evaluation and Policy Analysis, 4, (2), 237-47.

Jackson, G. A. (1986). MISSA, the fall of Siagon, and college choice: 1972 to 1980. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, San Diego, February.

James, W. H. (1957). Internal versus external control of reinforcements as a basic variable in learning theory. Unpublished doctoral dissertation, Ohio State University.

Johnson, F. Y. (1961). Political atitudes as related to internal and external control. Unpublished master's thesis, Ohio State University, Columbus.

Joreskog, G. and Sorbom, D. (1988). LISREL 7: A guide to the program and applications. SPSS.

Kandel, D. B. and Lesser, G. S. (1968). Parental and peer influences on educational plans of adolescents. Paper presented at the Annual Meeting of the American Sociological Association, Boston, August.

Kaufman, P. and Rasinski, K. A. (1991). Quality of the responses of eighth-grade students in NELS:88. National Education Longitudinal Study of 1988. Technical Report. (ERIC Document Reproduction Service No. ED339 722)

Keith, V. and Finlay, B. (1988). The impact of parental divorce on children's educational attainment, marital timing and likelihood of divorce. Journal of Marriage and Family, 50, 796-809.

Keller, M. and McKewon, M. (1984). Factors contributing to postsecondary enrollment decisions of Maryland National Merit Scholarship semifinalists. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, Chicago.

Kerkhoff, A. (1976). The status attachment process: Socialization or allocation? Social Forces, 55, 368-81.

Kerckhoff, A. and Campbell, R. (1977). Black-White differences in the educational attainment process. Sociology of Education, 50, 15-27.

Kohn, M., Manski, C. and Mundel, D. (1976). An empirical investigation of factors influencing college going behaviors. Annuals of Economic Social Measurement, 5 (4), 391-419.

Kolstad, A. J. (1979). The influence of high school type and curriculum on enrollment in higher education and postsecondary training. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, April.

Kotler, P. (1976). Applying marketing theory to college admissions. In A Role for Marketing in College Admissions. New York: The College Entrance Examination Board.

Lam, J. and Hoffmen, D. (1979). The study of sequential student participation in university in a changing environment. Manitoba, Canada: Brandon University.

Lefcourt, H. M. (1982). Locus of control. New York: John Wiley & Sons.

Lefcourt, H. M. and Ladwig, G. W. (1965). The American Negro: A problem in expectancies. Journal of Personality and Social Psychology, 1, 377-380.

Lent, R., Brown, S. And Larkin, K. (1986). Self-efficacy in the prediction of academic performance and perceived career options. Journal of Counseling psychology, 33, (3), 265-269.

Leslie, L., Johnson, G. and Carlson, J. (1977). The impact of need-based student aid upon the college attendance decision. Journal of Education Finance, 2, 269-86.

Lester, D. (1992). Cooperative/Competative strategies and locus of control. Psychological Reports, 71, 594.

Lewin, K. (1947). Frontiers in group dynamics. Human Relations, 1, 5-41.

Lewis, G. and Morrison, J. (1975). A longitudinal study of college selection. Tech. Report No. 2 Pittsburgh: School of Urban Public Affairs, Carnegie-Mellon University.

Litten, L. H. (1982). Different strokes in the applicant pool: Some refinements in a model of student college choice. Journal of Higher Education, 53, (4), 383-402.

Litten, L. H., Sullivan, D. and Brodigan, D. (1983). Applying market research in college admissions. New York: The College Board.7.

Little, C. B. (1977). Dimensionality of the Internal-External Control scale: Some further evidence. Journal of Genetic Psychology, 131, 329-330.

Maguire , J. and Lay, R. (1981). Modeling the college choice process. College and University, 56, (2), 123-39.

Manski, C. and Wise, D. (1983). College choice in America. Cambridge, MA: Harvard University Press.

Marini, M. and Greenberger, E. (1978). Sex differences in educational aspirations and expectations. American Education Research Journal, 15, (1), 67-79.

Marsh, H. W. and Richards, G. E. (1984). The multidimensionality of the Rotter I-E scale: An application of confirmatory factor analysis. (ERIC Document Reproduction Service No. ED 253 569)

Mattila, J. P. (1982). Determinants of male school enrollment: A time series analysis. Review of Economics and Statistics, 64, 242-51.

McGhee, P. E. and Crandall, V. C. (1968). Belief in internal-external control of reinforcements and academic performance. Child Development, 39, 91-102.

McLaughlin, D. H. (1997). NELS:88 survey item evaluation report. National Education Longitudinal Study of 1988. Technical Report. (ERIC Document Reproduction Service No. ED408 365)

Messick, S. (1997). Potential uses of noncognitive measurement in education. Journal of Educational Psychology, 71, (3), 281-292.

Miami-Dade County Public Schools. (1998). [FTE membership for October, 1998]. Unpublished raw data.

Mickelson, R. A. (1990). The attitudes-achievement paradox among Black adolescents. Sociology of Education, 63, 44-61.

Miller, I. (1983). Higher education: The demography of opportunity. Journal of College Admissions, 101, 10-13.

Mirels, H. L. (1970). Dimensions of internal versus external control as measured by the Rotter scale. Journal of Consulting and Clinical Psychology, 34, 226-228.

Murphy, P. E. (1981). Consumer buying roles in college choice. College and University, 57, 141-50.

Murray, C. B. (1992). Implications of self-handicapping strategies for academic achievement: A reconceptualization. Journal of Social Psychology, 132, (1), 23-37.

National Center for Educational Statistics (1994). Digest of Educational Statistics. Washington, DC: U.S. Department of Education, Office of Educational Statistics.

Nettles, M., Thoeny, A. and Gosman, E. (1986). Comparative and predictive analyses of Black and White students' college achievement and experiences. Journal of Higher Education, 57, (3), 289-318.

Nolfi, G. J. (1978). Experiences of recent high school graduates. Lexington, MA: Lexington Books.

Nowicki, S and Strickland, B. R. (1973). A locus of control scale for children. Journal of Clinical Psychology, 40, 148-154.

O'Brian, G. E. and Kabanoff, B. (1981). Australian norms and factor analysis of Rotter's Internal-External Control scale. Australian Psychologist, 16, 184-202.

Ogbu, J. V. (1978). Minority education and caste. New York: Academic Press.

Otto, L., (1976). Social integration and the status attainment process. American Journal of Sociology, 81, 1360-1383.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. Review of Educational Research, 66 (4), 543-578.

Parkin, F. (1976). Class, inequality and political order. New York: Praeger.

Patchen, M. (1982). Black-White contact in schools: Its social and academic effects. West Lafayette IN: Purdue University Press.

Paulsen, M. B. (1990). College Choice: Understanding Student Enrollment Behavior. ASHE-ERIC Higher Education Report No. 6. Washington, D.C.: Association for the Study of Higher Education.

Peters, W.B. (1977). Fulfillment of short-term educational plans and continuance in education. Washington, DC: National Center of Educational Statistics.

Phares, J. E. (1957). Expectancy changes in skill and chance situations. Journal of Psychology, 54, 339-342.

Phares, J. E. (1976). Locus of control in personality. Morristown, NJ: Learning Press.

Portes, A. and Wilson, K. (1976). Black-White differences in educational attainment. American Sociological Review, 41, 414-431.

Pruitt, A. S. (1973). Minority admissions to large universities: A response. Journal of College Student Personnel, 14, 22-24.

Ramey, C. T., McGinnes, G. D., Cross, L., Collier, A. M. and Barrie-Blackley, S. (1982). The Abecedarian approach to social competency: Cognitive and linguistic intervention for disadvantaged preschoolers. In K. Borman (Ed.), The Social Life of Children in a Changing Society. Hillsdale, N.J.: Erlbaum.

Ramey, C. T. and Ramey, S. L. (1992). At risk does not mean doom. National Health/Education Consortium Occasional Paper No. 4. National Commission to Prevent Infant Mortality, Institute for Educational Leadership, Washington D. C.

Reim, B, Glass, D.C. and Singer, J. E. (1971). Behavioral consequences of exposure to uncontrolled and unpredictable noise. Journal of Applied Social Psychology, 1, 44-56.

Rodman, H. (1963). The lower class value stretch. Social Forces, 42, 205-215.

Rosovsky, H. (1990). The university: An owners manual. New York: Norton.

Rotter, J. B. (1954). Social learning and clinical psychology. Englewood Cliffs, NJ: Prentice Hall.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs: General and Applied, 80 (1), 1-28.

Rotter, J. B. (1995). Some problems and misconceptions related to the construction of internal versus external control of reinforcements. Journal of Consulting and Clinical Psychology, 43, 56-67.

Rotter, J. B. and Mulry, R. (1965). Internal versus external control of reinforcements and decision time. Journal of Personality and Social Psychology, 2, 599-604.

Rotter, J. B., Seeman, M., and Liverant, S. (1962). Internal versus external control of reinforcements: A major variable in behavior theory. In N.F. Washburne (ed.) Decisions, Values and Groups. Pergamon Press. New York.

Russell, C. N. (1980). Survey of grade 12 students' postsecondary plans and aspirations. Manitoba, Canada: Department of Education.

Sanger, S. S. and Alker, H. A. (1972). Dimensions of internal-external locus of control and the women's liberation movement. Journal of Social Issues, 28, 115-129.

Schmit, J. and Hossler, D. (1995). Were are they now? A nine year longitudinal study of student college choice. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.

Schulz, R. (1976). Effects of control and predictability on the physical and psychological well-being of the institutionalized aged. Journal of Personality and Social Psychology, 33, 563-573.

Sedlacek, W. and Brooks, G. (1976). Racism in American education: a model for change. Chicago: Nelson-Hall.

Seligman, M. E. P. (1975). Helplessness: On depression, development and death. San Francisco: Freeman.

Sewell, W. and Hauser, R. (1975). Education, occupation and earnings: Achievements in early career. New York: Academic Press.

Sewell, W. and Shah, V. (1978). Social class, parental encouragement, and educational aspirations. American Journal of Sociology, 3, 559-72.

Sherrod, D. R. (1974). Crowding, perceived control, and behavioral after effects. Journal of Applied Social Psychology, 4, 171-186.

Sherrod, D. R. and Cohen, S. (1978). Density, perceived control, and design. In J.R. Aiello, and A. Baum (eds.), Residential crowding and design. New York, Plenum.

Skinner, E., Wellborn, J., and Connell, J. (1990). What it takes to do well in school and whether I've got it: A process model of perceived control and children's engagement and achievement in school. Journal of Educational Psychology, 82, (1), 22-32.

Sleeter, C. and Grant, C. (1987). Race, Class and Gender and Abandoned Dreams. Paper presented at the meetings of American Educational Research Association, Washington, DC.

Soper, E. L. (1971). A study of factors influencing the postsecondary educational plans of Utah high school students. Washington, DC: National Center for Educational Statistics.

Spady, W. G. (1975). Lament for the letterman: Effects of peer status and extracurricular activities on goals and achievement. American Journal of Sociology, 75, 680-702.

Spies, R. (1978). The effects of rising costs on college choice: A study of the application decision of high ability students. New York: The College Board.

Stage, F. and Hossler, D. (1989). Differences in family influences on college attendance plans for male and female ninth graders. Research in Higher Education, 30, (3), 301-315.

Stewart, N. et al. (1987). Counselor impact on college choice. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC.

Stipek, D. and Weisz, J. (1981). Perceived personal control and academic achievement. Review of Educational Research, 51, 101-137.

Taylor, K. And Betz, N. (1983). Applications of self-efficacy theory to the understanding and treatment of career indecision. Journal of Vocational Behavior, 22. 63-81.

Thomas, J., Iventosch, L., and Rohwer, W. (1987). Relationships among student characteristics, study activities, and achievement as a function of course characteristics. Contemporary Educational Psychology, 12, 344-364.

Tierney, M. (1980). Student college choice sets: Toward an empirical characterization. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, Washington, DC, March.

Tillery, D. (1973). Distribution and differentiation of youth: A study of transition from school to college. Cambridge, MA: Ballinger.

Tracey, T. and Sedlacek, W. (1984). Noncognitive variables in predicting academic success by race. Measurement and Evaluation in Guidance, 16, 171-178.

Tracey, T. and Sedlacek, W. (1985). The relationship of noncognitive Variables to academic success: A longitudinal comparison by race. Journal of College Student Personnel, 26, (5), 405-10.

Tracey, T. and Sedlacek, W. (1987). A comparison of White and Black student academic success using noncognitive variables: A LISREL analysis. Research in Higher Education, 27, (4), 333-348.

Trent, J. and Medsker, L. (1967). Beyond high school: A psychological study of 10,000 high school graduates. San Francisco: Jossey-Bass.

Tuttle, R. (1981). A path analytical model of the college going decision. Boon, NC: Appalachian State University.

United States Department of Education, Office of Educational Research and Improvement. (1992). National Education Longitudinal Study of 1988 User's Manuel. Washington DC: U.S. Government Printing Office.

Wang, .C., Haertel, G.D, & Walberg, H.J. (1993). Toward a knowledge base for school learning, Review of Educational Research, 63, 249-294.

Watson, J. M. (1981). A note on the dimensionality of the Rotter Locus of Control scale. Australian Journal of Psychology, 33, 319-330.

Weldi, A. and Novratil, F. (1987). The role of applicant's perceptions in the choice of college. College and University, 62, (2), 147-60.

Wilhite, S. C. (1990). Self-efficacy, locus of control, self-assessment of memory ability and study activities as predictors of college course achievement. Journal of Educational Psychology, 82, (4), 696-700.

Williams, J. E. and Coombs, W. T. (1996). An analysis of the reliability and validity of Bandura's multidimensional scales of perceived self-efficacy. Paper presented at the Annual Meeting of the American Educational Research Association, New York, April.

Willingham, W. W. (1970). Free access to higher education. New York: The College Board.

Yang, S. W. (1981). Rural youth's decisions to attend college: Aspirations and realizations. Paper presented at the Annual Meeting of the Rural Sociological Association, Guelph, Ontario, July.

Young, M. and Reyes, P. (1987). Conceptualizing enrollment behavior. Journal of Student Financial Aid, 17, (3), 41-49.

Zemsky, R. and Oedel, P. (1983). The structure of college choice. New York: The College Board.

Zimmerman, B. J. (1990). Self-regulated learning and academic achievement: An overview. Educational Psychology, 25, 3-17.

Zimmerman, B. J., Bandura, A. and Martinez Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal-setting. American Educational Research Journal, 23, 614-628.

Zuckerman, M. and Gerbasi, K. C. (1977). Dimensions of the I-E scale and the relationship to other personality measures. Educational and Psychological Measurement, 37, (1), 157-75.

APPENDIX A:

INSTRUMENT SET AND COVER LETTERS

Table A.1

Instrument Set Administered to all Student Samples

Note: The original instrument was to be electronically scanned and was printed on three legal size pages. The questionnaire is formatted here to integrate with the entire document.

Student Questionnaire

For the first three questions please fill in the best response to describe yourself.

1. Age: O 13 O 14 O 15 O 16 O 17 O 18 O 19 O 20
2. Race: O African American O Asian American O Hispanic O Native American O White
3. Gender: O Female O Male

For the next thirteen questions please fill in the number which best answers each question.

1 = not well at all
2 = not too well
3 = pretty well
4 = very well

4.	How well can you learn in school?	①	②	③	④
5.	How well can you learn mathematics?	①	②	③	④
6.	How well can you learn algebra?	①	②	③	④
7.	How well do you feel you could do in solving the following problem? Solve the quadratic equation by factoring: $6x^2 + 17x + 12 = 0$. *Don't spend time actually solving the equation.*	①	②	③	④
8.	How well can you learn science?	①	②	③	④
9.	How well can you learn biology?	①	②	③	④
10.	How well can you learn reading and writing language skills?	①	②	③	④
11.	How well can you learn to use computers?	①	②	③	④
12.	How well can you learn a foreign language?	①	②	③	④
13.	How well can you learn English grammar?	①	②	③	④
14.	How hard do you work to solve math problems? 1 = I don't try 2 = not too hard 3 = pretty hard 4 = very hard	①	②	③	④
15.	When you encounter a difficult problem in math, how long do you keep trying to solve the problem? 1 = I skip it 2 = not too long 3 = until I've given it a good try 4 = until it's solved	①	②	③	④

16. If you can't solve a particular kind of math problem how likely are you to attempt to solve a similar problem? ① ② ③ ④
1 = not at all likely 2 = not too likely 3 = likely
4 = very likely

For the next set of questions you must choose between two statements. Read both statements carefully and then fill in the bubble for the statement with which you most agree. Only fill in one bubble for each question.

17. ① Children get into trouble because their parents punish them too much.
② The trouble with most children nowadays is that their parents are too easy with them.

18. ① Many of the unhappy things in people's lives are partly due to bad luck.
② People's misfortunes result from the mistakes they make.

19. ① One of the major reasons why we have wars is because people don't take enough interest in politics.
② There will always be wars, no matter how hard people try to prevent them.

20. ① In the long run people get the respect they deserve in this world.
② Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.

21. ① The idea that teachers are unfair to students is non-sense.
② Most students don't realize the extent to which their grades are influenced by accidental happenings.

22. ① Without the right breaks one cannot be an effective leader.
② Capable people who fail to become leaders have not taken advantage of their opportunities.

23. ① No matter how hard you try some people just don't like you.
② People who can't get others to like them don't understand how to get along with others.

24. ① Heredity plays the major role in determining one's personality.
② It is one's experiences in life which determine what they're like.

25. ① I have often found that what is going to happen will happen.
② Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

26. ① In the case of the well prepared student there is rarely if ever such a thing as an unfair test.
② Many times exam questions tend to be so unrelated to course work that studying is really useless.

27. ① Becoming a success is a matter of hard work, luck has little or nothing to do with it.
② Getting a good job depends mainly on being in the right place at the right time.

28.	①	The average citizen can have an influence in government decisions.
	②	This world is run by the few people in power, and there is not much the little guy can do about it.
29.	①	When I make plans, I am almost certain that I can make them work.
	②	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.
30.	①	There are certain people who are just no good.
	②	There is some good in everybody.
31.	①	In my case getting what I want has little or nothing to do with luck.
	②	Many times we might just as well decide what to do by flipping a coin.
32.	①	Who gets to be the boss often depends on who was lucky enough to be in the right place first.
	②	Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
33.	①	As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
	②	By taking an active part in political and social affairs the people can control world events.
34.	①	Most people don't realize the extent to which their lives are controlled by accidental happenings.
	②	There really is no such thing as luck.
35.	①	One should always be willing to admit mistakes.
	②	It is usually best to cover up one's mistakes.
36.	①	It is hard to know whether or not a person really likes you.
	②	How many friends you have depends upon how nice a person you are.
37.	①	In the long run the bad things that happen to us are balanced by the good ones.
	②	Most misfortunes are the result of lack of ability, ignorance, laziness or all three.
38.	①	With enough effort we can wipe out political corruption.
	②	It is difficult for people to have much control over the things politicians do in office.
39.	①	Sometimes I can't understand how teachers arrive at the grades they give.
	②	There is a direct connection between how hard I study and the grades I get.
40.	①	A good leader expects people to decide for themselves what they should do.
	②	A good leader makes it clear to everybody what their jobs are.
41.	①	Many times I feel that I have little influence over the things that happen to me.
	②	It is impossible for me to believe that chance or luck plays an important role in my life.

42. ① People are lonely because they don't try to be friendly.
② There's not much use in trying too hard to please people, if they like you, they like you.

43. ① There is too much emphasis on athletics in high school.
② Team sports are an excellent way to build character.

44. ① What happens to me is my own doing.
② Sometimes I feel that I don't have enough control over the direction my life is taking.

45. ① Most of the time I can't understand why politicians behave the way they do.
② In the long run the people are responsible for bad government on a national as well as on a local level.

46. For each of the school subjects listed below, mark the circle that best describes your grades from the sixth grade up till now.

	mostly A's	mostly B's	mostly C's	mostly D's	mostly F's
English	O	O	O	O	O
Math	O	O	O	O	O
Science	O	O	O	O	O
Social Studies	O	O	O	O	O

47. How strongly do you want to attend college? (select only <u>one</u>)
O I would very much like to attend college.
O I would like to attend college.
O Attending college would be ok, but it is not a priority for me.
O I do not want to attend college.

48. How strong are your expectations to be able to attend college? (select only <u>one</u>)
O I definitely will attend college.
O I probably will attend college.
O I probably will not attend college.
O I definitely will not attend college.

49. At what age did you begin to think about going to college?
O I have never considered going to college.
O while in grade school (Kindergarten-5th grade)
O while in Junior High (6th-8th grade)
O during the ninth grade
O I have always known that I would go to college.

50. How far in school do you think your parents want you to get? (Answer only once for each parent by indicating the furthest you think they want you to go)

	Father or male guardian	Mother or female guardian
less than high school graduation	O	O
graduate from high school but not go any further	O	O
go to vocational, trade or business school after high school	O	O
attend college	O	O
graduate from college	O	O
attend higher level of school after graduating from college	O	O
don't know	O	O

51. How far in school did your parents go? (answer once for each parent)

	Father or male guardian	Mother or female guardian
did not finish high school	O	O
graduated from high school or equivalent (GED)	O	O
attended vocational school but did not graduate	O	O
graduated from vocational school	O	O
attended college but did not graduate	O	O
graduated from college	O	O
attended graduate or professional school	O	O
received a graduate or professional degree	O	O

52. Fill in the school activities in which you have participated.

- O science fairs
- O school sports (playing against teams from other schools)
- O intramural sports (playing against teams from your own school)
- O cheerleading
- O band or orchestra
- O chorus or choir
- O dance
- O history club
- O science club
- O math club
- O foreign language club
- O other subject matter club
- O debate or speech team
- O drama club
- O academic honors society, Beta Club or National Honor Society
- O student newspaper

- O student yearbook
- O student council
- O computer club
- O vocational education club
- O 4-H
- O scouting
- O other _____

53. In which school program are you enrolled (check one)?
- O general high school program
- O vocational, technical or business and career
- O college prep, academic or specialized academic (such as science or math)
- O other specialized high school program (such as fine arts)
- O other _____
- O don't know

54. Do you participate in the free or reduced lunch program? (select one)
O yes O no

55. Please indicate the other people who live in your household. (Select as many as apply)
- O mother
- O father
- O step-mother
- O step-father
- O brothers (indicate number of brothers including step-brothers and half-brothers in your household)
  O 1 O 2 O 3 O 4 O 5 O 6+
- O sisters (indicate number of sisters including step-sisters and half-sisters in your household)
  O 1 O 2 O 3 O 4 O 5 O 6+
- O relatives (indicate the number of other relatives living in your household)
  O 1 O 2 O 3 O 4 O 5 O 6+

Table A.2

Instruction Letter to Teachers

December 9, 1998

Dear Colleague:

Thank you for participating in this college choice research study. The purpose of this inquiry is to examine the factors which motivate students to go to college and hopefully, develop strategies which can be used to increase the number of young adults who aspire to a college education.

Please have your students use a # 2 pencil to complete the questionnaire. It is relatively straight forward and should take about fifteen minutes to complete. The directions for each section should be easy for your students to understand and the entire questionnaire was successfully tested with a pilot group of ninth-grade students from diverse backgrounds. The only section which may need clarification deals with questions 17 through 45. Here the students are asked to choose between two statements, selecting the one with which they most agree. The students might indicate they agree with both statements but should be directed to select only one statement, the one they agree with most.

After your students have completed the questionnaire, please return the forms to the envelope in which they came, write the name of your school and grade level of your class on the envelope, and return it to your principal or the principal's designee. The information contained in the questionnaire is to be anonymous so do not indicate any additional information on the questionnaires or the envelope. A full report of the results of the survey for your school will be shared with your principal once the study is complete.

Again, thank you for your time and assistance.

Sincerely,

Stuart Johnson

Table A.3

Parental Consent Form

Note: This form was contained on a single page when distributed. Inclusion here has lengthened it to two pages.

Consent Form

Purpose of the Study: You are being asked to give permission for your child to participate in a research study examining the factors which motivate students to go to college. Please read the details of the study. If you **do not** wish your child to participate in the study, please complete the bottom part of the form, sign and return to school.

Title of Research Study: College Choice: Psychological Factors Influencing Post-secondary Aspirations and Expectations of Ninth-Grade Students

Project Directors: Principal Investigator: Dr. Chad Ellett, 113 Peabody Hall, Louisiana State University, Baton Rouge LA
(504) 388-3488
Student Investigator: Stuart Johnson
(504) 342-8109

Procedures and Data: During English class, the students will be asked to complete a questionnaire answering questions related to their interest in going to college. Students will also be asked to indicate their age, race and sex. The questionnaire takes about 20 minutes to complete.

Potential Benefits and Risks: By identifying factors which motivate students to attend college, teachers and school officials can develop strategies to increase the number of students that decide to go to college. There are no apparent risks to the students who participate in this study.

Protection of Confidentiality: The project director will pass out and collect the questionnaires without looking at the answers. After all the questionnaires are completed, only the project directors will review the completed questionnaires. No identifying marks will be on the questionnaires and no effort will be made to identify the students participating in the study.

Student Agreement to Participate in the Study: The study will be explained to the students and volunteers will be asked to participate. No student will have to participate if they do not want to and no student will participate if the parents does not wish the student to participate.

*I do **not** wish to have my child participate in the study.*

student's name	*parent's signature*	*date*

APPENDIX B:

SUMMARY OF DESCRIPTIVE STATISTICS

Table B.1

Summary of Descriptive Statistics for Each Item for the Academic Self-Efficacy Scale (n = 1076)

Item	M	S.D.	%Max*
4	3.23	.60	80.8
5	3.00	.82	75.0
6	2.98	.85	74.5
7	2.92	.94	73.0
8	3.18	.70	79.5
9	2.98	.79	74.5
10	3.32	.67	83.0
11	3.35	.74	83.8
12	2.84	.86	71.0
13	3.17	.70	79.3
14	2.85	.77	71.3
15	2.96	.83	74.0
16	2.72	.75	68.0

* Percentage of maximum is calculated by dividing the item mean score by the maximum possible score for the item. All Academic Self-Efficacy items have a maximum possible score of four (4).

Table B.2

Summary of Frequency Distributions of Internal-External Locus of Control Scale
(n = 1076)

Item	Frequency	Percentage of Total	Frequency Missing
18a*	951	88.4	
18b	120	11.2	5
19a	234	21.7	
19b*	827	76.9	15
20a	462	42.9	
20b*	599	55.7	15
21a	384	35.7	
21b*	670	62.3	22
22a*	293	27.2	
22b	763	70.9	20
23a*	638	59.3	
23b	424	39.4	14
25a*	484	45.0	
25b	573	53.3	19
26a	539	50.1	
26b*	522	48.5	15
27a	784	72.9	
27b*	266	24.7	26
28a	569	52.9	
28b*	496	46.1	11
29a	538	50.0	
29b*	530	49.3	8

(table continues)

Item	Frequency	Percentage of Total	Frequency Missing
31a	725	67.4	
31b*	333	30.9	18
32a*	189	17.6	
32b	880	81.8	7
33a*	573	53.3	
33b	483	44.9	20
34a*	657	61.1	
34b	400	37.2	19
36a*	652	61.6	
36b	400	37.2	24
37a*	528	49.1	
37b	531	49.3	17
38a	355	33.0	
38b*	702	65.2	19
39a*	379	35.2	
39b	681	63.3	16
41a*	569	52.9	
41b	476	44.2	31
42a	354	32.9	
42b*	706	65.6	16
44a	637	59.2	
44b*	414	38.5	25
45a*	607	56.4	
45b	443	41.2	26

* Indicates choice with external orientation

Note: Items 17, 24, 30, 35, 40 and 43 are filler items and therefore not included

Table B.3

Summary of Descriptive Statistics for Academic Achievement

Subject	M	S.D.	%Max*
Total Sample (n = 106)			
English	3.94	.92	78.8
Mathematics	3.64	1.06	72.8
Science	3.89	.93	77.8
Social Studies	3.90	.97	78.0
African Americans (n = 195)			
English	3.73	1.01	74.6
Mathematics	3.26	1.25	65.2
Science	3.57	.93	71.4
Social Studies	3.65	1.09	73.0
Hispanics (n = 450)			
English	3.75	.91	75.0
Mathematics	3.47	1.01	69.4
Science	3.74	.94	74.8
Social Studies	3.75	1.00	75.0
Whites (n = 315)			
English	4.31	.78	86.2
Mathematics	4.02	.87	80.4
Science	4.23	.79	84.6
Social Studies	4.22	.77	84.4

*Percentage of maximum is calculated by dividing the item mean score by the maximum possible score for the item. All Academic Achievement items have a maximum possible score of five (5).

Note: Responses were assigned the following values: A = 5, B = 4, C = 3, D = 2 and F = 1.

Table B.4

Summary Descriptive Statistics for College Aspirations

Sample	N	M	S.D.	%Max*
Total Sample	1076	3.70	.61	92.5
African Americans	195	3.62	.65	90.5
Hispanics	450	3.63	.67	90.8
Whites	315	3.85	.44	96.3

* Percentage of maximum is calculated by dividing the item mean score by the maximum possible score for the item. The maximum possible score for College Aspirations is four (4).

Note: Responses were assigned the following values: Very high aspiration = 4, High aspirations = 3, Moderate aspirations = 2 and Low aspiration = 1.

Table B.5

Summary Descriptive Statistics for College Expectations

Sample	N	M	S.D.	%Max*
Total Sample	1076	3.61	.63	90.3
African Americans	195	3.57	.67	89.3
Hispanics	450	3.51	.68	87.8
Whites	315	3.77	.48	94.3

* Percentage of maximum is calculated by dividing the item mean score by the maximum possible score for the item. The maximum possible score for College Expectations is four (4).

Note: Responses were assigned the following values: Very high expectations = 4, High expectations = 3, Moderate expectations = 2 and Low expectations = 1.

Table B.6

Summary of Frequency Distributions for Parental Expectations
(n = 1076)

Level of Education	Frequency	Percentage of Total
Father or Male Guardian		
Less than high school graduation	12	1.1
Graduate from high school	21	2.0
Attend voc/tech or business school	23	2.1
Attend college	48	4.5
Graduate from college	299	27.8
Attend post graduate school	378	35.1
Don't know	83	7.7
Frequency Missing	212	19.7
Mother or Female Guardian		
Less than high school graduation	8	0.7
Graduate from high school	21	2.0
Attend voc/tech or business school	21	2.0
Attend college	52	4.8
Graduate from college	297	27.6
Attend post graduate school	420	39.0
Don't know	53	4.9
Frequency Missing	204	19.0

Table B.7

Summary of Frequency Distributions for Parents' Level of Education
(n = 1076)

Level of Education	Frequency	Percent
Father or Male Guardian		
Didn't graduate from high school	128	11.9
Graduated from high school	181	16.8
Attended voc/tech or business school	14	1.3
Graduated from voc/tech/business school	19	1.8
Attended college	78	7.2
Graduated from college	191	17.8
Attended graduate/professional school	60	5.6
Received graduate/professional degree	212	19.7
Frequency Missing	193	17.9
Mother or Female Guardian		
Didn't graduate from high school	115	10.7
Graduated from high school	195	18.1
Attended voc/tech or business school	9	0.8
Graduated from voc/tech/business school	25	2.3
Attended college	107	9.9
Graduated from college	229	21.3
Attended graduate/professional school	47	4.4
Received graduate/professional degree	178	16.6
Frequency Missing	171	15.9

Table B.8

Summary of Frequency Distributions for Participation in Extracurricular Activities (n = 1076)

Activity	Frequency
Science fairs	492
School sports	462
Intramural sports	194
Cheerleading	99
Band or orchestra	202
Chorus or choir	167
Dance	196
History club	46
Science club	123
Math club	106
Foreign language club	142
Other subject matter club	194
Debate or speech team	74
Drama club	125
Honor society/Beta club	177
Student newspaper	60
Student yearbook	64
Student council	92
Computer club	77
Vocational education club	27
4-H	17
Scouting	76
Other	175

Table B.9

Summary of Frequency Distributions for High School Academic Track (n = 1076)

Track	Frequency	Percentage of Total
General high school program	528	49.1
Voc/tech/business/career	38	3.5
College prep	123	11.4
Specialized program	40	3.1
Other	32	3.0
Don't know	216	20.1
Frequency Missing	99	9.2

APPENDIX C:

SUPPLEMENTAL FACTOR STRUCTURES FOR LOCUS OF CONTROL AND ACADEMIC SELF-EFFICACY MEASURES

Table C.1

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Three-Factor Orthogonal Solution for the Internal-External Locus of Control Scale (n = 1076)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III
*18	.10	.27	.03	.17
19	.14	-.07	**.35**	.13
*20	.11	.17	.26	-.11
*21	.09	.20	.23	-.04
*22	.05	.13	.17	-.02
23	.25	0	-.01	**.50**
*25	.09	.08	.10	.27
26	.25	.30	**.40**	-.01
27	.36	**.56**	.03	-.21
28	.41	.13	**.63**	-.10
29	.19	**.40**	.14	.09
31	.36	**.60**	0	-.06
32	.35	**.59**	-.06	-.01
33	.36	-.02	**.57**	.19
34	.25	.30	.07	**.40**
36	.15	-.01	-.11	**.37**
37	.19	-.02	-.05	**.43**

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III
38	.43	-.14	**.64**	.04
*39	.16	.22	.27	.20
41	.36	.32	.08	**.50**
*42	.10	-.12	.04	.31
44	.10	**.42**	.09	.03
45	.21	-.14	.08	**.43**
Variance Explained[b]		8.45%	7.43%	6.73%
Total Variance Explained[c] 22.6%				

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.2

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Five-Factor Orthogonal Solution for the Internal-External Locus of Control Scale (n = 1076)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV	V
18	.19	.07	.02	.25	.35	-.05
19	.15	-.04	**.38**	-.01	.07	.07
*20	.32	.34	.23	.02	.35	.17
21	.16	**.42**	.09	-.21	.06	-.18
22	.23	-.07	.24	**.40**	-.05	.07
23	.44	.03	.09	0	.06	**.65**
25	.20	.01	.08	-.02	**.43**	-.06
26	.45	**.44**	.24	-.12	.26	-.34
27	.45	.26	-.01	**.59**	.02	-.19
28	.44	.22	**.60**	.10	-.10	-.09
29	.26	**.48**	.06	.07	0	.13
31	.41	**.59**	-.12	.22	-.01	-.01
32	.53	.23	-.04	**.68**	.07	.09
33	.50	-.09	**.65**	.20	.11	.13
34	.32	.33	.02	-.05	**.43**	.14
36	.36	.06	-.04	-.05	-.06	**.59**
37	.37	-.13	-.03	-.06	**.59**	.02

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV	V
38	.44	.10	**.61**	-.23	.02	-.09
*39	.19	.13	.26	.17	.28	.01
41	.39	**.36**	.04	-.04	**.43**	.27
42	.28	.15	.04	**-.38**	.02	.33
44	.22	**.42**	.03	.18	.01	.07
*45	.31	-.28	.20	.10	.31	.30
Variance Explained[b]		7.89%	7.08%	6.39%	6.32%	5.87%
Total Variance Explained[c] 33.55%						

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.3

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, African American Sub-Sample (n = 195)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
*18	.25	.21	.31	-.32	.05
19	.20	-.05	.22	**.36**	-.15
20	.42	.24	-.27	.11	**.53**
*21	.11	-.32	.10	.03	.02
22	.25	.22	-.07	.09	**-.43**
23	.32	-.01	.05	**.48**	.30
25	.28	.01	**.51**	-.08	-.10
26	.43	.23	**.53**	-.20	.24
27	.45	**.62**	.23	-.09	-.05
*28	.34	.39	-.23	.37	-.02
29	.17	**.39**	.07	.05	.10
31	.36	**.57**	-.07	-.03	.17
32	.48	**.67**	.10	-.02	-.20
33	.26	.28	.10	**.38**	-.16
34	.20	-.07	**.37**	.09	-.23
36	.47	-.07	-.13	**.66**	.11
37	.25	-.27	**.45**	.00	.04

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV
*38	.14	-.06	.29	.04	.24
39	.37	.07	**.48**	.36	-.03
41	.28	.16	**.40**	.10	.02
42	.40	-.23	.20	.33	**.45**
44	.31	.28	-.01	.07	**.48**
45	.50	.00	.07	.44	**-.55**
Variance Explained[b]		9.01%	7.77%	7.46%	7.07%
Total Variance Explained[c] 31.31%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.4

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Hispanic Sub-Sample (n = 450)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
18	.25	**.42**	.12	-.22	-.12
19	.20	-.20	**.35**	.18	.05
20	.27	-.09	.19	**.43**	.20
21	.23	.16	.06	**.45**	.05
*22	.10	.10	.28	-.08	.09
23	.31	-.19	.15	-.16	**.47**
25	.26	.14	**.41**	-.23	.15
*26	.23	.32	.17	.31	-.01
27	.38	**.60**	-.05	.13	-.05
28	.41	.23	**.50**	.31	-.12
29	.23	.21	.13	.23	**.34**
31	.37	**.44**	-.08	.35	.22
32	.33	**.52**	-.07	-.02	.23
33	.50	.07	**.68**	-.16	.07
34	.40	.15	.05	.04	**.61**
36	.23	-.17	-.14	-.16	**.39**
37	.13	.04	.12	**-.34**	.05

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV
38	.46	-.16	**.63**	.17	-.09
39	.22	**.44**	.13	-.07	.07
41	.41	.10	.04	.08	**.63**
42	.25	-.37	.17	.13	.26
44	.28	**.48**	.10	.19	-.10
45	.40	.01	.09	**-.61**	.14
Variance Explained[b]		8.69%	7.47%	6.91%	6.79%
Total Variance Explained[c] 29.86%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.5

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, White Sub-Sample (n = 315)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
18	.34	.12	-.07	.14	**.55**
19	.37	-.25	**.47**	.17	-.24
20	.17	.05	.09	**.40**	-.04
21	.22	**.45**	.10	.06	-.03
22	.28	-.07	-.03	**.52**	.09
23	.30	-.07	.10	.04	**.53**
*25	.09	.09	-.02	-.20	.24
26	.34	**.48**	.32	-.07	0
27	.38	.27	.01	**.55**	-.09
28	.56	.08	**.74**	-.02	-.06
29	.33	**.51**	.11	.24	-.06
31	.27	**.50**	-.04	.14	-.03
32	.50	.13	.02	**.68**	.14
33	.47	.03	**.67**	.14	.10
34	.25	**.42**	.11	.09	.24
*36	.12	.31	-.07	-.11	.09
37	.42	.02	.03	-.11	**.64**

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV
38	.53	.29	**.57**	-.23	-.27
39	.22	.07	**.35**	.19	.23
41	.44	**.57**	.04	-.03	.34
42	.25	**.34**	-.19	-.29	.12
44	.21	.22	.18	-.03	**.36**
45	.27	.14	**.34**	-.32	.17
Variance Explained[b]		8.75%	8.73%	7.45%	7.12%
Total Variance Explained[c] 32.05%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.6

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Male Sub-Sample (n = 466)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
18	.25	.04	**.50**	-.02	.02
*19	.13	.18	-.11	.29	.03
20	.21	**.36**	-.12	.22	.13
*21	.08	.25	.11	.03	.07
*22	.18	.14	-.16	.33	-.16
23	.41	-.01	.11	.05	**.63**
25	.25	.01	**.35**	.17	-.32
26	.37	.16	**.56**	.08	-.15
27	.42	**.56**	-.04	.14	-.29
28	.27	.14	.17	**.47**	.04
29	.27	**.46**	.19	.08	-.11
31	.41	**.61**	.14	-.12	.06
32	.35	**.58**	-.10	-.04	.05
33	.50	.03	.18	**.68**	.08
34	.14	**.34**	.03	.15	-.05
36	.44	.20	-.13	-.05	**.62**
37	.20	-.14	**.42**	-.02	-.01

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV
*38	.50	-.13	.07	**.69**	.04
39	.27	.07	**.48**	-.01	.19
41	.25	.14	**.41**	.21	.15
42	.18	-.07	.13	.08	**.39**
44	.33	.38	.41	-.14	.01
45	.15	-.06	-.07	.25	.28
Variance Explained[b]		8.23%	7.24%	7.18%	5.92%
Total Variance Explained[c] 28.57%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.7

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Female Sub-Sample (n = 570)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
18	.16	**.39**	.02	.05	.07
19	.28	-.09	-.01	**.48**	.20
*20	.06	.01	.22	.09	-.09
21	.27	-.06	.27	.28	**-.34**
22	.18	**.38**	-.05	.07	.16
23	.38	.09	.22	-.07	**.56**
25	.11	-.04	.20	.09	.25
26	.41	.07	.28	**.47**	-.32
27	.44	**.60**	.05	-.06	-.27
28	.40	.21	.07	**.58**	-.10
29	.30	.04	**.55**	0	.01
31	.40	.30	**.44**	-.03	-.34
32	.48	**.67**	.16	-.05	.02
33	.39	.14	-.06	**.51**	.32
34	.35	.02	**.55**	.13	.18
36	.22	-.05	.14	-.15	**.42**
*37	.11	.03	-.02	.08	.32

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV
38	.39	-.10	.10	**.61**	-.04
*39	.23	.31	.09	.34	.10
41	.40	.11	**.60**	0	.17
42	.42	**-.50**	.40	-.05	.06
44	.13	**.39**	.28	.02	.02
45	.25	.09	-.09	.16	**.46**
Variance Explained[b]		7.91%	7.73%	7.47%	6.73%
Total Variance Explained[c] 29.84%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.8

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, African American Sub-sample (n = 195)

Self-efficacy Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
4	.61	.39	**.62**	.27	.01
5	.66	**.81**	-.05	-.06	.01
6	.73	**.85**	.02	.02	.05
7	.55	**.71**	.03	.02	.22
8	.79	-.05	**.87**	.15	.09
9	.74	-.04	**.85**	.08	.10
10	.73	.01	.17	**.83**	.09
11	.49	.25	.29	.28	**.51**
12	.44	.10	.04	.34	**.64**
13	.68	0	.14	**.81**	.03
14	.55	.16	-.02	.29	**-.66**
15	.40	**.52**	.09	.29	-.20
16	.44	**.49**	.37	-.03	-.26
Variance Explained[b]		20.26%	16.49%	13.91%	9.24%
Total Variance Explained[c]	59.9%				

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.9

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, Hispanic Sub-sample (n = 450)

Self-efficacy Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
*4	.51	.26	.42	.33	.40
5	.71	**.84**	.01	.02	.00
6	.78	**.88**	.05	.01	.06
7	.55	**.71**	.17	.12	.05
8	.82	.02	.15	**.89**	.07
9	.81	.09	.22	**.87**	.00
10	.72	-.09	**.82**	.10	.18
11	.30	.15	**.49**	.11	-.17
12	.27	.15	**.45**	.19	-.09
13	.69	.05	**.82**	.06	.11
14	.65	-.07	-.02	-.08	**.80**
15	.44	.27	-.04	.13	**.59**
*16	.30	.35	.26	.08	.32
Variance Explained[b]		17.71%	16.45%	13.62%	10.37%
Total Variance Explained[c]	58.15%				

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.10

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, White Sub-sample (n = 315)

Self-efficacy Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
*4	.54	.45	.48	.30	.13
5	.77	**.84**	.10	.16	.16
6	.78	**.86**	.08	.15	.09
7	.58	**.74**	.09	.11	.09
8	.79	.25	.19	**.83**	-.04
9	.81	.16	.13	**.87**	.10
10	.63	-.06	**.73**	.15	.26
11	.40	.24	**.58**	-.08	-.06
12	.47	.17	**.65**	.11	-.09
13	.60	-.06	**.70**	.23	.24
14	.61	-.01	.06	-.13	**.77**
15	.58	.17	-.03	.16	**.72**
16	.42	.26	.23	.07	**.54**
Variance Explained[b]		19.07%	16.61%	13.39%	12.33%
Total Variance Explained[c]	61.6%				

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.11

Summary of the Rotated Factor Structure Coefficients for Items for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, Male Sub-sample (n = 466)

Self-efficacy Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
*4	.52	.38	.43	.41	.15
5	.72	**.84**	.08	.03	.09
6	.79	**.88**	.06	.06	.09
7	.61	.76	.04	.18	.00
8	.78	.10	.22	**.85**	-.01
9	.81	.09	.17	**.88**	.03
10	.67	-.06	**.80**	.10	.14
11	.36	.16	**.56**	.01	-.11
12	.33	.04	**.52**	.22	-.10
13	.55	.06	**.70**	.21	.11
14	.66	-.04	.01	-.04	**.81**
15	.52	.25	-.02	.08	**.67**
16	.27	**.35**	.28	0	.26
Variance Explained[b]		18.82%	15.79%	14.00%	9.79%

Total Variance Explained[c] 58.4%

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table C.12

Summary of Rotated Factor Structure Coefficients for Items for the Four-Factor Orthogonal Solution for the Self-Efficacy Scale, Female Sub-sample (n = 570)

Self-efficacy Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV
4	.48	.30	.21	**.50**	.31
5	.71	**.83**	.01	.09	.12
6	.78	**.88**	.03	.08	.05
7	.53	**.70**	.13	.10	.12
8	.83	.04	.12	**.90**	.04
9	.78	.10	.10	**.88**	-.01
10	.66	.11	**.73**	.18	.29
11	.37	.14	**.58**	.09	-.09
12	.43	.14	**.62**	.04	-.17
13	.62	-.01	**.74**	.08	.26
14	.62	-.09	-.08	-.01	**.78**
15	.41	.33	.04	.08	**.54**
16	.41	.28	.18	.10	**.54**
Variance Explained[b]		17.65%	14.78%	14.76%	11.62%
Total Variance Explained[c] 58.81%					

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

APPENDIX D:

ITEM LOCATION INDEX FOR FACTORED SUBSCALES FOR LOCUS OF CONTROL AND ACADEMIC SELF-EFFICACY MEASURES

Table D.1

Item Location Index for Factor Subscales of the Internal-External Locus of Control Scale

I-E LOC Subscales	Item Numbers
Academic Control (5)*	21, 26, 29, 31, 44
Political/World Affairs (4)*	19, 28, 33, 38
Leadership and Success (4)*	22, 27, 32, 42
Interpersonal Relations/Influence (6)*	23, 34, 35, 36, 41, 45

* Number of items retained on subscale

Table D.2

Item Location Index for Factor Subscales of the Academic Self-Efficacy Scale

Academic Self-Efficacy Subscales	Item Number
Mathematics (3)*	5, 6, 7
General Subjects (4)*	10, 11, 12, 13
Science/Biology (2)*	8, 9
Persistence (3)*	14, 15, 16

* Number of items retained on subscale

APPENDIX E:

RELIABILITY ANALYSES BY RACIAL SUBGROUPS

Table E.1

Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales, African American Subsample (n = 195)

Instrument/Subscale	Alpha Coefficient
Locus of Control (23)[a]	
Subscales	
Combined 23 Items	.46
Academic Control (5)[b]	.26
Politics/World Affairs (4)	.23
Leadership and Success (4)	.09
Interpersonal Relations/Influence (6)	.25
Academic Self-Efficacy (13)	
Subscales	
Mathematics (3)	.77
General Subjects (4)	.62
Science/Biology (2)	.81
Persistence (3)	.41

a. Total number of items for the factor-analyzed version of the instrument in this study
b. Number of items on the subscale

Table E.2

Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales, Hispanic Subsample (n = 450)

Instrument/Subscale	Alpha Coefficient
Locus of Control (23)[a]	
Subscales	
Combined 23 Items	.50
Academic Control (5)[b]	.44
Politics/World Affairs (4)	.42
Leadership and Success (4)	.12
Interpersonal Relations/Influence (6)	.33
Academic Self-Efficacy (13)	
Subscales	
Mathematics (3)	.78
General Subjects (4)	.62
Science/Biology (2)	.80
Persistence (3)	.36

a. Total number of items for the factor-analyzed version of the instrument in this study
b. Number of items on the subscale

Table E.3

Summary of Standardized Cronbach Alpha Reliability Coefficients for Locus of Control and Academic Self-Efficacy Subscales, White Subsample (n = 315)

Instrument/Subscale	Alpha Coefficient
Locus of Control (23)[a]	
Subscales	
Combined 23 Items	.61
Academic Control (5)[b]	.42
Politics/World Affairs (4)	.54
Leadership and Success (4)	.21
Interpersonal Relations/Influence (6)	.38
Academic Self-Efficacy (13)	
Subscales	
Mathematics (3)	.82
General Subjects (4)	.64
Science/Biology (2)	.79
Persistence (3)	.52

a. Total number of items for the factor-analyzed version of the instrument in this study
b. Number of items on the subscale

APPENDIX F:

SUMMARY OF DATA ANALYSES PERFORMED USING LOUISIANA DATA SET

Table F.1

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Five-Factor Orthogonal Solution for the Internal-External Locus of Control Scale, Louisiana Data Set (n = 131)

I-ELOC Item	Communality Estimates[a]	Factor Coefficients I	II	III	IV	V
18	.59	.12	**-.70**	.24	.11	.14
19	.24	.27	**.35**	.11	-.10	-.14
20	.45	**.66**	.13	-.02	-.02	.01
*21	.42	.02	.35	.25	.40	-.27
*22	.49	-.34	.22	.40	-.04	.40
23	.27	.03	.01	.03	**-.52**	.02
25	.60	.16	-.18	-.05	-.23	**.70**
26	.28	.23	-.14	**.36**	.11	-.26
27	.44	.24	**-.46**	.33	-.08	-.24
28	.52	.31	**.63**	.14	.09	.01
29	.47	.15	.09	.14	**.64**	.11
31	.51	-.18	-.05	**.65**	.19	-.11
32	.34	-.01	.29	**.40**	-.27	-.14
33	.35	**.57**	.09	-.08	.05	.10
34	.25	.04	-.16	.01	**.46**	.10
36	.49	**.67**	.01	.18	-.07	.06
37	.16	-.12	.03	.00	.20	**.33**

(table continues)

I-ELOC Item	Communality Estimates	Factor Coefficients I	II	III	IV	V
38	.37	**.50**	.06	-.08	.26	-.20
39	.50	.29	-.03	**.59**	-.26	.02
41	.38	.08	.09	.00	.31	**.52**
42	.40	.33	**.45**	-.03	.25	.17
44	.52	.00	-.06	**.62**	.26	.25
45	.44	.21	**.49**	.04	-.28	.28
Variance Explained[b]		9.74%	8.91%	8.41%	7.64%	6.72%
Total Variance Explained[c] 41.42%						

Bold type indicates item/factor location

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table F.2

Summary of the Rotated Factor Structure Coefficients for Items Retained for the Two-Factor Orthogonal Solution for the Self-Efficacy Scale, Louisiana Data Set (n = 131)

Self-Efficacy Item	Communality Estimates[a]	Factor Coefficients I	II
4	.63	**.71**	.35
5	.62	.23	**.75**
6	.61	.26	**.74**
*7	.10	.31	.05
8	.42	**.65**	.04
9	.41	**.54**	.35
10	.46	**.68**	-.01
11	.26	**.49**	-.13
12	.31	**.48**	.29
13	.50	**.67**	.23
14	.18	-.13	**.41**
15	.37	.05	**.61**
16	.40	.18	**.61**
Variance Explained[b]		24%	20.34%
Total Variance Explained[c] 44.34%			

Bold type indicates item loadings which meet criteria established for item retention

* Item loadings do not meet criteria established for item retention on factor

a. Sum of squared loadings for this four-factor solution

b. Percentage of item variance explained by each factor

c. Percentage of total item variance explained

Table F.3

Summary of Intercorrelations of College Aspirations and College Expectations with Other Study Variables, Louisiana Data Set (n = 131)

Instrument/Measure	Aspirations	Expectations
Academic Self-efficacy		
Factor 1	.55*	.53*
Factor 2	.36*	.34*
Locus of Control		
Factor 1	.00	.00
Factor 2	-.12	-.09
Factor 3	-.28**	-.29*
Factor 4	-.09	-.18
Factor 5	-.04	.03
Parental Expectations		
Father/Male Guardian	.31**	.30**
Mother/Female Guardian	.20	.24
Parents' Education Level		
Father/Male Guardian	.02	.01
Mother/Female Guardian	.16	.07
Academic Achievement	.52*	.55*
Extracurricular Activities	.11	.09
High School Track	.33*	.37*

* $p<.001$, ** $p<.01$

VITA

Stuart Earle Johnson, son of Oliver A. and Carol Pence Johnson, was born on June 27, 1953 in San Francisco, California. On August 1, 1981, Stuart married Sharon Marie Smith of Maringouin, Louisiana. He is the father of one child, Lauren Elizabeth Johnson.

Stuart graduated in 1971 from John W. North High School in Riverside, California. He holds a Bachelor of Arts degree in History from the University of California at Santa Barbara, which he received in 1975. In 1978, Stuart completed a Master of Business Administration degree at Loyola University in New Orleans, Louisiana.

Stuart's was employed by the University of Southwestern Louisiana (now University of Louisiana at Lafayette) in a number of professional positions from 1978 to 1997. In 1978, he came to the university as the Free Time Activities Coordinator. In 1979, he moved to the Dean of Student Personnel Office as an Assistant Dean. From 1980 to 1983 he was the Assistant Director of Student Financial Aid, from 1983 to 1984, the Assistant Director of the Student Union, from 1984 to 1988, the Director of Campus Programming and Recreation, and from 1988 to 1997, the Director of the Student Union. In 1997, Stuart took the position of Deputy Assistant Secretary with the Louisiana Office of State Parks and is currently employed in this position.

DOCTORAL EXAMINATION AND DISSERTATION REPORT

Candidate: Stuart Earle Johnson

Major Field: Educational Leadership and Research

Title of Dissertation: College Choice: Psychological Factors Influencing Postsecondary Aspirations and Expectations of Ninth-Grade Students

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination:

25 October 1999